

Aviation News

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AAF Reveals Facts About the B-32: *The Army Air Forces has finally taken the wraps off the B-32, Consolidated Vultee's heavy bombardment plane. The use to which this newest addition to the U. S. air fleet will be put has not been disclosed.*

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THERE'S A NEW STANDARD IN AIR TRANSPORTATION*

Lockheed Constellation

Lockheed Aircraft Corporation, Burbank, California  Years ahead in the science of flight



THE AVIATION NEWS

Washington Observer

TERMINATION REPORT—Report of the Office of Contract Termination is at the printers and should be out soon. Terminations resulting from V-E Day are barely reflected since the report goes only through June.

TOUGHER TERMINATIONS—Termination of aircraft contracts is more complex than for any other war industry. Reasons are: the industry is the biggest and more money is involved, more components and suppliers are involved, the industry's rapid expansion. In addition, cost plus fixed fee contracts are more difficult to settle than fixed price contracts and the aircraft industry has more of the former type.

SURPLUS WARPLANES—It is now known to be the belief of high Surplus Property Board officials that all surplus combat planes will have to be scrapped, except those to be used for educational and other non-flight purposes. Private rumors in the feeling that jet propulsive developments shortly will make obsolete most current combat planes. Before any definite move is made toward scrapping, however, there is likely to be an attempt made to sell some combat types, merely to insure against criticism from Congress and other quarters. SPB officials believe the dollar return will be so low in comparison to original cost that objection to scrapping will be minimized.

NO SURPRISE—A second look at the appointment of W. Stuart Symington, as chairman of SPB, makes it obvious that President Truman's recommendation for a single administrative should not have been surprising. Although quoted as saying, "No one stipulates to the President," when asked if he took the job on the condition he be made sole boss, Symington is believed to have known in advance of the President's recommendation.

CAA DECENTRALIZATION—Although opposite in principle the CAA decentralization effected in the latest reorganization, some circles see in it a "back-pedal" maneuver. Already there have been instances of complaints regarding field decisions being returned with the admonition that Washington only sets policy, it not responsible for the actions of field officials. The Air Line Pilots Association is concerned over the decentralization because airlines, passing through two or more CAA regions, are thus subject to possible conflicting ruling of "inconsistent" airports. ALPA would like a coordinator in Washington to reconcile such actions.

INTEGRATION—There is a likelihood that a new organization will be formed to lead the airlines' fight against the integration proposal expected to grow out of the House Interstate and Foreign Commerce Committee's transport investigation. President William A. Patterson, of United Air Lines, has looked upon integration not unfavorably in the past. That fact might make the Air Transport Association mis-step the issue, leaving the airlines opposed to the scheme to create their own spokesman, just as they did on the international policy issue.

FEW JETS IN EUROPE—Air Corps procurement is being criticized by members of the Senate War Investigating Committee for reported slowness in getting jet-propelled planes into the European theater. The committee commented that by early spring the Germans had large numbers of jet planes in the air and were using them with considerable effectiveness. Members noted, they said, that only two American jet planes had found their way to the ETO, despite the fact that men in the field for over a year had sent warnings the Germans were preparing for a major jet plane offensive.

New photo of the RAF Meteor turn-engine jet fighter in flight



The Man on Main Street holds the key to Peace



JOHN Q. CITIZEN, the Man on Main Street, has a vital role in post-war aviation. Aviation will provide him with new, world-sweeping utility, he in turn can influence the growth and development of aviation in his daily interest as its citizen. As for National Security, the idea of Permanent Peace Through Air Power is one that can count to achievement only through public support.

Americans already started looking out the stars of the future by personal support of organizations which are trying to keep America active and

strong in the air. As the Germans advanced, when their war was done, Air Power played a major role in the Nazi defeat—and Air Power is strong security against future aggression.

John Q. Citizen has other tools for peace at hand. His interest in peace flying, his transportation, local air terminals, air strips and air parks, his support of air shows and exhibitions; his interest in aviation literature, books, education and research, his participation in aviation organizations... all these are specific ways in which he will help make peace through Air

Power a reality for this country.

And Bell Aircraft makes a pledge of continuous cooperation. The company will intensify its research and scientific development program which has already brought into being so many aviation firsts—the Avenger and Kingcobra, the "coconut on wings"... America's first jet propelled plane... the first helicopter with built-in, engine stability... representing the kind of aeromedical pioneering which looks to the future—in the skies.

★ By War Bonds and Speed Victory ★

MIAGRA FRONTIER DIVISION

*Engine 1400, N. Y.
Aviation (P-30) and Engines (P-31)—Fighting
Aircraft—America's First Jet Propelled Plane*
The Bell Helicopter

ORGANIC DIVISION
Burlington, N. J.
Flexible Gun Mount and other advanced materials

GEORGIA DIVISION
Marietta, Ga.
Bell Bank B-28 Superfortress

BELL Aircraft
PACEMAKER OF AVIATION PROGRESS

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Congressional Research Proposals Seen Vital To Air Industry Future

Critical procurement program immediately following war's end believed resting partially on effect of any experimentation program enacted; contemplated Federal agency to oversee research is main point of interest.

With a record of having progressed faster than nearly any other industry on the basis of consistent, ever-widening research, the aircraft industry last week watched with growing interest, tinged with concern, the several Congressional proposals for a Federal agency to oversee research.

Biggest question in industry circles was the effect on the future of any of the proposed bills would have on post-war military procurement; specifically, procurement in the critical period immediately following the war with Japan. Most studied opinion is that in that period the industry will need heavy experimental and developmental funds.

Large Fund—The contemplated research agency would require appropriations ranging from \$35,000,000 annually, up. The industry wonders if a post-war, economy-minded Congress would consent to large military appropriations for research and development on top of the funds it would have to allocate for the overall research or development.

Thus, with a reservation for potentially unfavorable trends, the aircraft industry favors the measures now being proposed for facilitating research after the war in essence, these are:

Research Board for National Security, set up in the National Academy of Sciences at the request of the Secretaries of War and Navy. It will carry on in the interim period between the dissolution of the Office of Scientific Research and Development and the establishment of a new department.

S 1285, a bill introduced by Sen. Warren G. Magnuson (D-Wash.) to authorize a National Research Foundation—a companion bill HR

3648, was presented to the House by Jennings Randolph (D-W. Va.) Based directly on the report of Dr. Vannevar Bush, director of OSRD, it was referred to the Commerce Committee.

S 1292, a bill by Sen. Harley M. Kilgore (D-W. Va.), Edwin C. Johnson (D-Col.) and Claude Pepper (D-Fla.) to create a National Science Foundation. This bill, based indirectly on the OSRD report and at the request of Sen. Kilgore, was referred to the Military Affairs Committee.

In addition, there are a number of other measures pending, one of which, HR 3490—which has passed the House—would authorize a grant of \$6,000,000 to the National Academy of Sciences for re-

search in the interest of security.

Main difference between the proposals of Magnuson and the other three Senators, besides the name of the organization, is in the approach. A subcommittee of the Military Affairs Committee, headed by Kilgore, for months has been studying the German industrial potential, and now concludes (a) the U. S. was dependent upon German scientific leadership, (b) this was largely due to patent systems, licensing, and control arrangements.

NACA Sale—The National Advisory Committee for Aeronautics would be unshaken by the passage of either of the bills. In fact, NACA was used as a model for the agency suggested in the OSRD report. To the industry, this is a mixed blessing.

On the one hand, NACA has done some notable work; on the other, its failure to keep industry advised as to the results—possibly because of military restrictions—has resulted in costly duplication of NACA labors.

In addition, some industry quarters criticize NACA for doing too much development work, and



IN FOR OVERHAUL

A U. S. Navy Martin Mariner is pictured being hoisted aboard a transport tender for maintenance after a long patrol flight. Besides completely overhauling the big plane, the tenders have re-equipment facilities for the pilots and crews who fly the patrol boats.

Newest Mustang Ready For Japs

More power, speed, range, and strength built to disprove 700-lb. saving in weight.

North American Aviation has a new and speedier Mustang, 730 pounds lighter than its predecessor model.

While achieving greater speed, maneuverability, range and improving general performance in the new model, engineers strengthened the new Mustang, the P-51H, some 10 percent throughout, despite the reduction in its overall weight. The plane has a combat range of more than 2,000 miles, and a speed of more than 560 mph.

Power Plus—Generating better than 2,600 horsepower, the power plant section is developed around a Packard-built Bells-Boyd V-16 engine, utilizing a fuel injection pump and a new four-bladed engine-propeller designed for higher engine horsepower.

The added boost gives the Mustang efficient operation up to 42,000 feet, and a rate of climb 26 percent faster than the earlier model. The engine material is 40 percent lighter. Much of the weight saving was accomplished in this section.

Lighter-weight alloys, material-saving modifications and advanced aerodynamic features account for further reductions. Electrical controls are grouped centrally to reduce wiring in the new Mustang.



Where the Wright Wing: On the photo above, North American Aviation engineers have marked the points from which critical weight was removed to produce the newest Mustang version, P-51H.

'Copter Loner

Beyond the PV model of the 13-glider PV helicopter, announced last week (Aviation News, July 20 by the A-7 Engineering Forum, Inc., Sharon Hill, Pa.), the company is planning a commercial version of the 45-ft copter. Production models of the little PV-3 one-place helicopter and a two-place version will follow soon.

NAVY is establishing a sales and service organization to handle commercial distribution of these models, and other more advanced designs now in various, preliminary stages. The company asserts it will offer the most complete line of helicopters for post-war transport in this country.

and the pilot control panel has been simplified.

With an eye on pilot's problems and comfort for long missions, North American engineers set up an improved seat installation, better heating and ventilating systems and other accommodations designed to reduce fatigue.

Firepower Retained—Improvements incorporated in the P-51H were attained without giving up any of the Mustang's firepower. Fittings to carry 10 rockets under the wings are featured together with racks to carry bombs weighing up to 1,400 pounds, or extra fuel tanks are mounted on the ship. The Mustang retains six .50 caliber machine guns with increased re-

loadability, and simplification of service and maintenance.

The new Mustang was built by North American, in cooperation with the Air Technical Service Command in answer to the AAF's demand for a fighter with greater range, more speed and higher ceiling for Pacific operations.

Three Key Men Shifted In ATSC

Continuing shuffle of Wright Field personnel moves Gen. Wolfe and Bernadakis overseas, Col. Sims to Washington.

Continuing reorganization of Air Technical Service Command headquarters at Wright Field, Dayton, Ohio, under Maj.-Gen. Hugh J. Kner, commanding general, has resulted in transfer of three key men, two of them to overseas assignments, and other shifts in the organization.

Maj. Gen. Kenneth B. Wolfe, chief of engineering and procurement, and Maj. Gen. Victor Bernadakis, chief of maintenance, have been transferred to overseas assignments while Col. Turner A. Sims, chief of administration, has been transferred to Washington.

Office Mergers—Divisions commanded by General Wolfe have been restructured in the organization, so that engineering is now combined with maintenance to fall under the direction of Maj. Gen. W. C. Chaffee, as a deputy commander. Procurement, now is placed with supply and readjustment under direction of Maj. Gen. Lester T. Miller, also as a deputy commander general, and formerly chief of the supply division.

Replacing General Bernadakis as maintenance division chief, under Chaffee, is Brig. Gen. Isaac W. Oel, returned from maintenance and supply commands in the European theater. Replacing Col. Sims is Col. Kenneth H. Balling, until recently director of personnel for the U. S. Strategic Air Forces in Europe.

Col. William A. Dana, former deputy chief of supply has been advanced to chief of supply, the plane formerly held by General Miller.

Plan Chief—Maj. Gen. E. E. Adler, formerly chief of ATSC management control, has been named deputy commander in charge of plans. Post of deputy commander in charge of personnel and intelligence are filled by acting

commanders, Coln. Ralph Nemo, and John M. Hayward, respectively, indicating that further changes may be anticipated in these posts.

Wolfe is best known for his development and production work on the B-29 Superfortress, first as production chief at Wright Field, later as head of a special B-29 project staff, and finally as first commander of the 20th Bomber Command, at the time operations were begun in the China-Burma-India theater and the first Superfortresses made. He was the Distinguished Service Medal for his work on the B-29.

Bernadakis, a former Douglas Aircraft Co. executive, was a World War I flyer, with Edw. H. Rickenbacker's 95th Pursuit Squadron, and in World War II served in the southwest Pacific with distinction; winning the Distinguished Service Medal and other decorations.

Sims has been at Wright Field since 1934, and is credited with development work on the controllable propeller and other aviation research work.

Military Field Light Requirements Jump

Military requirements for aviation ground lighting equipment have increased during the last quarter year and are expected to continue high, at least until the end of the year.

Members of the Aviation Ground Lighting Equipment Industry Advisory Committee told WPA officials that there was difficulty in planning construction production because of gaps in military contracts.

Buying Control—Centralized procurement for military needs, established under Order L-235—revoked last April, will be continued by military department. The Air Technical Service Command, Wright Field, acts as the central military procurement agency for the bulk of aviation ground lighting, excepting certain equipment for base landing areas procured by the Navy.

For civilian fields, the Airways Engineering division of CAA is procuring equipment under its own centralized system.

The industry is hopeful that existing specifications and drawings will be simplified and reduced in order as practicable to a performance status. Elimination of detailed specifications will permit



First Flight for New 'Mars' Vanden: The Elmer Mars takes to the air on her maiden flight immediately after christening ceremonies at The Glenn L. Martin Baltimore plant.

the industry to exercise its ingenuity in the development of equipment and will open additional opportunities during the recovery period.

Peace Place Seen For Naval Mars

NAVY believed ready to take all 26 JRM's ordered, even if it was early before final deliveries.

By BLAINE STURBIELEDER
About seven of the Navy's order for 26 Martin Mars JRM 131st marine group planes are expected to be delivered by the year end. Informed sources say they believe Navy will take all 26 planes even if the war ends before all are delivered.

The Glenn L. Martin Company has just launched No. 1, the M-61, Mars, MS-301—powered

(gross weight) version of the 128,000-pound original XPB-2M long range patrol bomber, which was later converted to a JRM and which has made a remarkable record in the Coast-Bureau service of NATS.

Progress Hint—Conversation at the launching indicated that No. 2 is out the door and ready to fly. No. 3 is "well along," and No. 4 is "well under way."

It is estimated that production of the JRM's will be at the rate of about one per month or five weeks; thus completion of the remaining 19 would take at least 19 months. One unofficial report is that the Navy is set to take 15 units, come when ready, and to contract the other ten later. The termination settlement on the elaborate make-ready and the low maintenance Mars order would be very high.

Strapped speakers at the launching, July 21, at Middle River, Md., were New Admiral L. B. Nicholson, assistant chief of the Bureau of Aeronautics, and Martin Maj. De Witt Clayton Ramsey, wife of Rear Admiral Ramsey, former chief of BuAir now on duty in the Pacific, christened the flying ship and it was flown the same day.

Airline Use—NAVY could use the estimated 15,000-gal. and payload capacity of the entire Mars fleet to good advantage right now in the redeployment of troops and shipment of critical supplies. One spokesman for NATS said that if Congress objects to maintenance of the antiques fleet of 20 in peacetime, for "service of the Pacific islands," some can be decommissioned and sold to U. S. flag or foreign airlines.

Glenn Martin and friends of fly-

ing boats in the Navy have lost had during recent years to sell the waterplane idea to ship operators. So far as can be learned, no orders have been placed.

Martin and others hope that further demonstration by the Navy of the efficiency, safety and versatility, will bring about the adoption of seaplanes by some American operators.

Meanwhile, the British are acquiring seaplanes for coast-water services and American waterplane men are saying that the Civil Aeronautics Board should require some U. S. routes to operate seaplanes to insure against this country being beaten by the lead by the British and others. A Russian seaplane, upon seeing the Hughes flying boat recently, is reported to have commented, "That's just what we want."

The last of JIM's work as order is mostly to do a job, perhaps in light on captured experience. The old Navy prototype did the pioneering in 225,000 miles of flight in 15 months, carrying 25,000 pounds per sq. ft. mostly between Alameda, Calif., and Hawaii. Her efficiency was commended by Admiral Henshaw J. King. She has been retired to training service.

The main production Mars has a single tail instead of two, and four-bladed propellers instead of three. The hull has been lengthened several feet to 150 feet 3 inches, and the height has been increased several feet to 44 feet 7 inches at the tail, on lifting gear.

A simplified booster control system has been provided, and flexible Mating oil cells and wing tanks replace the rigid ones. While the old Mars had some limitations due to conversion, the new design has low-net main cargo doors which can receive large and field guns, and can carry 100,000 pounds of cargo. The main doors are equipped with landing gear.

Unmatched—This design is stressed for loads greater than its present power can carry. Martin says he will install post-war Pratt & Whitney engines of much greater power to insure "a flying ship unmatched anywhere on earth for economy, load-carrying capacity, range and speed." Unofficially, but on good authority, it was said that the post-war jet-powered design will gross 125,000 pounds. Current production is costing the Navy about \$14 per pound.

P-80 Unveiling Set For Air Force Day

Showering Star's public debut, Gen. Arnold to "star" on national observance of AAF's 31st anniversary.

Impressive flying demonstrations of the nation's military aircraft and public display of many necessities throughout the nation will mark AAF's 31st Air Force Day, in observance of the 31st birthday of the AAF.

New York, Washington, and Los Angeles are the sites of the most elaborate dance programs planned, while Wright Field, Dayton, Ohio, is expected to present the most spectacular mass flight of the nation's top fighting planes.

The "Star"—In honor of the day, the Lockheed P-80 Shooting Star, which the AAF calls "the fastest plane in the world" will be shown to the public for the first time, in flight, at several exhibitions, at points throughout the country.

Photographs of the plane are being released to the press for the first time on that date.

The day has been set aside by proclamation of President Truman declaring that "The U. S. Army Air Forces have demonstrated throughout the world the ability of air power to spearhead the attack of our armed forces upon the enemy and have materially contributed to the successful completion of the war in Europe."

Five "Stars"—An address by General H. H. Arnold, commanding AAF and the New York AAF Day dinner, sponsored jointly with

by the Air Power League and the Wings Club, will be broadcast nationally and will be heard by radio at the other centers being held simultaneously.

In Washington, the dinner, sponsored jointly by the Air Power League and the Aero Club of Washington, will have as its principal speaker Air Marshal Douglas Collier, USAF, of the United Nations joint chiefs of staff. The Army Air Forces band will play for the gathering.

In Los Angeles, a banquet with Chuck Gable as chairman, and many stage and screen stars participating together with high-ranking AAF officers, will climax the day with two aerial parades and demonstrations at West Coast air bases at the Los Angeles airport.

Sponsors—National co-sponsors of the celebration are the Air Power League, headed by Charles E. Wilson and the Civil Air Patrol, headed by Capt. Earl K. Riebel. Local units and members of the two organizations have been asked to cooperate in sponsoring various local activities in observance of the day.

B-17 Output Halted Gen. Eaker Reports

Two indications of the trend of the air war against the day were disclosed last week by Gen. Ira C. Eaker, deputy AAF commander and chief of air staff, when he announced that all production of Flying Fortress has been halted and that production in AAF personnel will be comparatively small.

Output of B-17's at Boeing and other companies making the Flying Fortress will stop, but it will not be necessary to increase the production of Boeing's B-29 Superfortress. Losses of this highly effective weapon, Gen. Eaker reported, have been less than one percent, whereas a 10 percent attrition has been estimated. The B-29 has five times the striking power of the B-17.

Rough Spots—He said 12,475 Flying Fortresses have been built and that there are enough spare parts in this country to equip all those on hand. Some 4,000 have been flown back from the European theater of operations.

Cutback on the B-17, scheduled through 1946, totals 45,000 planes. Not all of these had been contracted for, but all were on the war production schedule. Gen.

Eaker said the cutbacks would result in a saving of \$7,600,000,000, in addition to 700,000 tons of steel and 900,000 pounds of aluminum.

Gen. Eaker told his first Washington news conference that the Air Forces will play such an important role in the program of Japan's defeat that there will be few personnel cutbacks. Out of approximately 3,490,000 men in the AAF, they will need 2,310,000. Already 46,000 men, in addition to crews have been flown back from Europe. Approximately 36,000 are returned by water.

Tactics Revised—The general said that a preliminary report of the effect of bombing in Europe has been submitted to the War Department by the Strategic Bombing Commission and changes in some tactics had been made as a result.

Operational work over Japan, he said, was more difficult than over Europe. However, several bombings have been perfected. The B-29 and crews are trained especially in this work. He reported that the Superforts are bombing from much lower altitudes than the 25,000 to 30,000 feet of the original attacks on Japan.

Douglas Camouflage Praised By Army

Observance of Santa Monica plant, no longer military secret, is now being removed gradually.

"Fastest example of protective camouflage in the world," Douglas Aircraft Company's camouflage of its attack-vulnerable Santa Monica, Calif., plant no longer is a military secret, and gradually is being removed.

Japan's Pearl Harbor attack gave the go-ahead to camouflage plans originated before the Pacific war by Frank Colchese, technical assistant to the Douglas vice-president of engineering, and H. Roy Kelley, Los Angeles architect.

Factory buildings, outdoor assembly lines, parking lots and related buildings were covered with 4,650,000 square feet of chicken wire netting.

Dark Houses—Upon this foundation was built a "new looking" assemblage of houses and garages, streets, and even small farms. Painted surfaces, amounting to 16,300,000 square feet, were given "late dawn" coats to blend the buildings at all angles of viewing into surrounding residential and farm areas.



Toward Japan: On the horizon, haze-obscured, is the Pacific, from which approaching enemy planes would see this residential section in their search for Douglas's Santa Monica plant. A-B-29's on the runway would carry under cover upon as are road screens, and the runway would appear as a farming plot.

The factory's adjacent Clover Field runway vanished under a camouflage of painted "faint" extensions and open "fields."

At a mile distance a dummy runway was installed, bordered by wood duplicating the plant's main buildings as they appeared prior to camouflage.

Special Paint—Warner Brothers Studios assisted in the development of the project by photographing in testing of scale models, and special paint pigments were developed to resist discoloration of the camouflage.

Roof 'Village' Covers Boeing Plant

A roof-top "village" capable of accommodating 200 persons conceals the Boeing Two plant of Boeing Aircraft Co. at Seattle, and following its completion, the plant will be in full view.

A million board feet of lumber was used in building the "village" of 100,000 sq. ft. of support wires, 1,500,000 sq. ft. of steel structures, 1,500,000 sq. ft. of chicken wire, and a mile and one-half of cutlery for floors and emergency escape protection. The "lives" are from 8 to 12 feet high.

The adjoining Boeing Field is also camouflaged along the surrounding landscape. Dark wings of ad-soaked steel struts are placed between 100-ft-high "houses" of concrete blocks.

End to Sight—With the release of the details of the precautions taken to make the Boeing plant, it is now expected that the first city will be dismantled.

Back by infra-red photography.

The Douglas "village" is believed to have been the first to use fiberglass, sandwiched between two layers of chicken wire, for the surface insulation. Standard practice formerly was to use chicken wire for the insulation of chicken wire with bar-lap or adhesive chicken feathers. Credit for being "the finest" was given the venture by the chief of U. S. Army Engineers, and following its completion, the Douglas has camouflage was copied in other areas and studied by camouflage



Insurers: A few tab stop off the Santa Monica, Calif., shore had lobbied while into this hillside farm they would have dropped shortly into (1) the private office of Donald Douglas, president of Douglas Aircraft Company; (2) into extremely low turning out some production 40-50 bombers and Army transports. The hillside slope follows the steepest curve of the plant's biggest building.

experts of allied nations.

It was so well known that Claver Field's lower operator frequently had to "red light" Army and Navy planes flying to land on the damaged air strip nearby, and men with flags were stationed on the road leading to the field to locate it for incoming pilots.

Capitol Opposition Faces SPB Change

There are signs of opposition on Capitol Hill to the proposal made by President Truman for a single administrator of the Surplus Property Board to replace the present three-man board.

While the President stressed the importance which his attitude is an immediate revision of SPB by sending his recommendation to Congress from Potsdam, the coalition with which Congress received the request is undermined by the fact that both House and Senate went south with strong plans without discussing an extended stay in Washington to meet Mr. Truman's proposal.

Reluctant Fight—Congress wrangled for weeks last year over the single-administrator versus multiple-board issue and finally settled on the three-man compromise. Some members have expressed reluctance to reopen the controversy, although the President's recommendation already has been passed.

There was some resentment among some members over the President's approach in presenting

his request. Mr. Truman commented on his belief that time had proved that new Secretary of State Byrnes—who advocated a single administrator last year—was right and that members of Congress who established a three-man board were wrong. There are indications that some members are ready to defend their position in favor of the three-man set-up.

Senator Elbert Thomas (D-Utah) chairman of the Senate Mil-

New Air Staff

Two top Army Air Force posts have been consolidated to leave five assistant chiefs of air staff instead of the original six. Operations, requirements and communications, and maintenance and services have been combined into supply and logistics. Lt. Gen. Ira Baker is the new deputy commander of AAF, and chief of staff.

Five generals who have been service overseas head up the new air staff as announced.

• **Mr. Gen. Fred L. Anderson, Jr.**, assistant chief of air staff, personnel.

• **Mr. Gen. Edward R. Quenda**, assistant chief of air staff, intelligence.

• **Mr. Gen. Hoyt S. Vandenberg**, assistant chief of air staff, operations and training.

• **Mr. Gen. E. M. Poyser**, assistant chief of air staff, supply and logistics.

• **Mr. Gen. Leland Newell**, assistant chief of air staff, plans.

tary Affairs Committee which handles SPB legislation, ventured to predict to AVIATION NEWS that there will be no change in the three-man establishment.

• **Hill Set**—Legislation incorporating President Truman's views on the matter will be introduced as soon as Congress returns from summer recess.

Overseas Surplus Power Shift Nears

Final details are being worked out for the transfer of authority and personnel for overseas disposal of surplus aircraft, from the post of surplus aircraft, from the Foreign Economic Administration to the Office of the Army Navy Liquidation Commissioner.

It seems evident that William W. Brunkerhoff, now chief of FEA's aircraft division, will be director of the surplus division of the Commission. August 1 is the effective date of transfer.

• **New Official**—Discussions have been held on the question of having a high civilian official act as liaison between the Commissioner and the aircraft manufacturing industry and air transportation industry. To date no one has been selected. If such an official should be brought into the Commission's office for aircraft, Brunkerhoff would still continue to direct the division as the operating level. The new man would direct policy and would represent the industry viewpoint to the Commissioner and explain activities to the industry.

Newly appointed executive officer for the Commissioner is Brig. Gen. Leonard W. Miller who replaced Col. Clark Kirtland, who will leave shortly for an overseas assignment with ANLC. General Miller, former military attaché in Brazil, has been adviser to the Commissioner on South American surplus activity.

Continued announcements of new personnel can be anticipated with the aircraft division of ANLC increasing by some 30 people.

British Jet Veterans Die

Squadron Leader A. O. Moffatt, of the RAF, senior test pilot of the Power Jets Limited, producers of the original jet-powered aircraft, was killed when his twin jet plane met with an accident during a demonstration flight at Whetstone, in Leicestershire, England, and crashed.

PRIVATE FLYING

Shake-Up Of CAA 'Old Guard' Seen General Aviation Demand

Pilot, manufacturer, airport, and service operator spokesmen join in charging elder employees with maintaining outdated philosophy as shut door against progressive actions of Administrator Wright; General Inspection division is main target.

By WILLIAM KROGER

An attempt to correct top officials of the Commerce Department and CAA of the urgency of a wholesale shake-up in CAA is evident in the increasing signs of dissatisfaction with the agency among manufacturers, several service operators, industry associations, and growing thousands of private pilots.

Common view is that changes in CAA regulations can never be particularly helpful until there is a similar change in personnel. Better criticism has been directed in private at both CAA personnel and policies for months. Those most immediately concerned—aircraft service operators and pilots—have been as fearful of punitive action possible under the automatic system attributed to CAA they have been wary of speaking out.

• **Lies Have**—But as more and more attacks appear in print, and the Non-Scheduled Flying Advisory Committee hears a growing number of complaints on methods and conduct of its members, there is a demand for better operators to bring the situation into the open.

Perhaps the greatest objection is that while recent revision of Civil Air Regulations has headed toward relaxation of some requirements, the men charged with administering those regulations have not changed. This philosophy, it is maintained, is the same as it was 15 years ago.

Striking at this condition, an editorial in the July issue of *National Aeronautics*, published by the National Aeronautics Association, declares, "Mr. Wright (CAA Administrator T. P. Wright) has inherited to carry out his policies a great many men who have no notion of doing so."

• **Civil Service Shield**—Asserting that "there is an Old Guard with-

in CAA whose attitude is that while Mr. Wright proposes it discusses," the editorial points out that Civil Service rules are partly responsible. Consequently, "men in CAA feel that while Administrators come and go, they stay on forever."

However, it adds, there are also Civil Service provisions to provide for the "entrance and the business Government servant. We would suggest that Mr. Wright... all down with his staff and explain to them once more, fully and patiently, what the policies of CAA are... If that does not work, we suggest that he examine those other rules."

In a similar vein, a recent newsletter of the United Pilots and Mechanics Association said, "It is high time the creed of every division and section head is reviewed

to determine whether he has been carrying out Mr. Wright's objectives."

• **Supervision Ratio**—"It is high time to make some changes. A system which requires 10,000 employees to supervise the flying of 55,000 civilian planes cannot succeed with 100,000 or 200,000 planes. CAA would need 44,000 to 50,000 employees."

Previously, *National Aeronautics* had asserted the proposal that 90 of CAA—requested by CAA—would necessitate four times the present staff to administer.

One of the main sources of dissatisfaction with CAA's operation is the General Inspection Division, which is under the direction of Assistant Administrator Fred M. Landon. Charges of capriciousness, intolerance, mismanagement are made against inspectors by operators.

• **Body Laposes**—The Non-Scheduled Flying Advisory Committee has received reports of lapses of from 60 to 100 days in inspectors' performing their duties. The operator of a CAA-certified flight school waited more than half a year this month for the assignment of a flight examiner although a school, upon designation, is supposed to be given an examiner.

Many inspectors have created the fear pilots and operators have of the inspection division. Although various organizations get high returns on questionnaires to pilots and operators, a CAA regional office queried 100 operators with-



PRIVATELY-BUILT MIAMI AIRPARK:

The Miami Aviation Country Club, exciting only removal of terrain necessary for a building program, is now operating for flight training. Two hangars are in operation. In the foreground is D. S. No. 1, the main highway into Miami, right under south. In the background is Roseway Bay, on which a seaplane base will be located. Multiple "T" hangars are now being built to house the more than 20 planes regularly based at the field. The club has made progress despite barriers thrown in its way by Miami officials and as element of businessmen, who oppose privately-owned airports, want to force all operators into public airports. No public airports have been started, although another private airport has been planned so far.

NATA Policy

National Aviation Trades Association's based at director's meeting, scheduled Aug. 1 in Kansas City, may bring a showdown on operations and policies of the association.

Objections, raised by many members in recent months, to "standards" taken by association officials are receiving serious consideration by the directors. **Stricter Rules**—One outcome of the meeting is expected to be a clearly defined act of association policies, laid down by the entire board of directors to which the officers will be expected to adhere strictly in the future.

No. 198, that "any Flight Examiner who complies an unreasonably long record of approvals without any disapprovals should be investigated by the Inspector to determine the caliber of the students being recommended for approval."

Reverse Value—CAA has already stated that examiners generally will be the instructors who teach the applicants to fly. Some private flying groups now wonder if CAA is putting a premium on inefficiency and if an examiner will have to fail arbitrarily one of his own students every now and then merely to protect his own status.

New Examiner Role Remains A Blank

CAA admits failure to specify any special private pilot flight examination despite "authorization" two months ago.

Although nearly two months have passed since an "instruction" was sent out to all CAA inspectors directing them to appoint private pilot flight examiners, Washington CAA officials admitted last week that not a single one has been appointed.

The admission made a virtual myth out of a CAA press release of July 23 which stated that the CAA "is authorizing" qualified men to give flight tests to private pilot applicants.

Explanation—Asked for an explanation of the long delay, a CAA spokesman attributed it to failure to have the necessary forms completed at the Government Printing Office.

Observers viewed the delay, however, as probably another maneuver in the continuing dual between conservative and liberal factions, in and outside, of CAA over the regulation of private flying.

It is known that CAA's Non-scheduled Flying Advisory Committee came to Washington in June prepared to recommend the more liberal provisions for appointment of private pilot flight examiners than were promulgated in the June 4 instruction of Fred Lauer, assistant administrator in charge of Civil Aviation.

Quicker Action—But, when the committee met, June 13-14, they found that Lauer's instruction had been sent out quietly the week before. Confronted with that instruction, which called for action at least partially remedy the situation in making it easier to get ex-

aminations for private pilot, the liberal group did not press its claim as vigorously.

Some of the liberals insisted, however, a new system, that at least some of the new examiners would be named and ready to go to work when the new Civil Air Regulations affecting private pilots became effective, July 1.

It is understood that a large number of recommendations have been received from CAA field men, for appointment of individual examiners who are qualified even under the rules laid down by Lauer.

Washington Blame—So, responsibility for the delay appears to rest in Washington, either at the overruled Government Printing Office, or in the CAA Safety Regulation Office for failure to "expedite" the necessary forms which it requires, so that they would be ready when needed.

Harlow Buys Plans Of Interstate Planes

Sale of all airplane plans and production equipment of Interstate Aircraft and Engineering Corp., Ingleside, Calif., to Harlow Aircraft Co., Alhambra, Calif., was announced last week. As a result, Harlow will go into early production of post-war personal aircraft at Alhambra Airport, which it recently purchased from TWA.

Interstate's jets and bombs will allow immediate manufacture by Harlow of 68 and 100 hp Cadet light planes.

Another Plan—Harlow officers also anticipate production of a revised model of the all-metal flying Harlow monoplane, which was produced before the war and at the time showed high performance characteristics.

The purchase of the Interstate airplane line given Harlow, in addition to the Cadet models two Interstate designs that were under development at the opening of the war. One is a folding wing monoplane somewhat larger than the Cadet. The other, which had not gone beyond the nucleus stage, was a high performance two-engine personal airplane employing a high speed, retractable "hooded" fuselage.

Interstate will retain its post-war future on the manufacture of aircraft accessories, soft drink dispensing machines, a domestic refrigeration compressor, an one-cylinder, four-cycle, gasoline engines ranging from 3/4 to 6 hp.



A glimpse at the globe shows why. Look at the globe. Note the width of the Pacific. And remember, distance doesn't lead enthusiasm, where logistics are concerned! How to get blood, vital supplies, or personnel across the Pacific quickly? That's a job for the MARS... the Naval Air Transport Service!

MARS Soars Over Every Ocean

Thanks to the MARS, life-giving whole blood reached the Leyte beachhead 48 hours after leaving San Francisco. Thanks to the MARS ten million letters were flown over the Pacific shore in 1944. And thanks to the MARS, our fighting men, from Rio to Okinawa, are receiving high-priority cargoes... ammunition,

NATS need more Martin Mars II
perillous, radio parts, aircraft tires, etc... in ever-increasing volume.

Bright Stars in Pacific Skies

Bright stars in Pacific skies are the MARS' new 82-ton Martin Mars cargo carriers. The original Mars in its first year flew the equivalent of 9 trips around the world... carried more than two million pounds of cargo... was never in port more than 24 days for turn-around. And the new Mars flying freighter, now joining NATS, show higher performance.

A Flying to Tomorrow's Airline

Martin's Flying boats will pay big dividends to tomorrow's airlines. Proven in service with SATS, both Mars and Mainers are known quan-

This design is a modern step to an evolving new air flying men on every front.

ties. Both are in production right now... a fact which will mean prompt delivery, at minimum costs, of postwar commercial versions. So for speed, comfort and economy... plan to travel or ship, via Martin Flying boat! THE GLORY L. MARTIN COMPANY, BALTIMORE 3, MD. The Glenn L. Martin Company—Cincinnati

Martin AIRCRAFT
Division of Republic Aircraft Division

New Taylorcrafts Expected By Fall

"Quantity production" of the two-place mid-by-side Taylorcraft Model B21C is expected to be underway by September, Nash Russ, new Taylorcraft president, has announced. (Photos on Page 20).

Production has already started on both the two-place plane, and the much publicized Model 15 four-place Taylorcraft, full production of which is expected to be reached by December.

► **Prices**—The two-place plane will sell for \$12,285, FOB Alliance, Ohio, while the Model 15 will sell for \$13,550 to \$19,295 depending on whether it has a 120-hp or a 190-hp engine.

The first plane to be offered is generally similar to the previous two-place Taylorcraft but with new instrument panel and control wheels, an extra 800-gallon fuel tank to increase cruising range, a one-piece tapered Plexiglas windshield and other extras.

President Russ declares that while the price of the two-place model is the same as that of the pre-war predecessor, the customer is getting an additional \$190 to \$400 worth of new equipment and refinements. The four-place plane price range he asserts is more than 50 percent lower than the lowest previous four-passenger plane.

► **Auto Level**—The price reductions, contrast very favorably with the automobile industry, Russ says, since a 25 percent advance in post-war automobile prices is planned.

Economy of operation and automobile-style comforts are emphasized in both designs, the company notes, with a gasoline consumption figure of more than 25 miles to the gallon for the smaller plane and a good 18 m.p.g. in the bigger for the family plane.

Canadian Air Clubs Get More Aircraft

A total of 73 aircraft were sold by War Assets Corporation, Canadian government surplus sales organization, during June for a total of \$116,762. The sales included 45 De Havilland Tiger Moths to the Royal Canadian Flying Clubs Association for distribution, after repair and overhaul, to flying clubs throughout Canada.

This is part of the 318 Tiger Moths recently (AIRCRAFT NEWS, July 16) sold to the association.

Briefing

For Private Pilots and Non-Scheduled Aviation

Fifth American woman glider pilot to attain a "C" soaring proficiency rating is Mrs. Virginia M. Beeson, 23 years old, of Hicksville, L. I. Mrs. Beeson, an employee of Republic Aviation Corp., and secretary of the Republic Soaring Society, is a member of the Airchamps Gliding and Soaring Club, has been flying gliders three years. She won her "letter" with a 26 minute flight at Kinnas, N. Y., recently.

► **"RECOUPE" TO GRAND CENTRAL**—Maj. C. C. Mosley's Grand Central Airport Co., Glendale, has signed an agreement to distribute "Recoupe" for the state of California and is making arrangements for appointment of dealers in the territory. B. W. Hiteckow, Grand Central's assistant sales manager, will direct sales.

SAMPLE OF CURRENT TROUBLE—Sydney Nashit, Lear aircraft radio sales manager, reports that he succeeded in getting enough types of one particular type to complete Lear radio installations on 20 otherwise-completed new Grumman Wildcat amphibians. He sent out 171 telegrams, 33 letters and made 52 telephone calls in order to round them up. And while that trouble is something special, it's a sample of the kind which aircraft manufacturers are finding in assembling hard-to-get components into complete new personal airplanes.

► **TRIANGLE OF AIRPORTS**—Three nearby airports in the New York area which will offer private pilots facilities under the same management, as soon as restrictions on Long Island flying are lifted, are Triana Airport at Andover, N. J., Westfield Airport at Rahway, N. J., and Rockaway Airport, on Long Island. Under the arrangement contemplated, flyers will be permitted to fly rented planes from country from any of the three bases to another without returning the plane to the first base. Westfield and Triana Airports are now operating.

► **46 NEW HANGARS**—Construction of 46 new hangars, 10 of concrete block, and the others of prefabricated materials, was reported underway at three airports for private flyers in the Miami, Fla. area, last week. The Miami Aviation Center said 16 individual hangars were under construction, of concrete block, and that the center eventually expected to build 288. Embury-Biddle's Chapman Field was awaiting delivery of 32 prefabricated hangars, while Broward Airport was awaiting arrival of 25 prefabricated hangars. It is estimated there are now approximately 500 hangars for civilian planes in the Miami area.

► **YOUR PERSONAL PLANE**—Generally sound advice to potential personal plane buyers about planes, costs, airports, service facilities, and other factors in the private flying picture, are found in a new book, "Your Personal Plane," by John Paul Andrews, recently published by David Schatz & Co., Inc. Appended is the pre-war CAA airport directory, now quite antiquated and in some respects inaccurate.

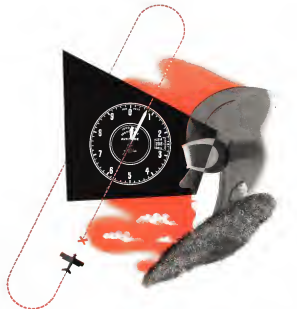
► **PRE-FLIGHT TRAINING**—Capt. Albert Luke of Lewis School of Aeronautics, Lockport, Ill., predicts use of the Penguin pre-flight trainer will become an integral part of school and college aviation courses, as well as an aid to initial flight training. His prediction follows experiments at the Lewis Chicago pre-flight school in which pupils were given approximately 18 hours of flight lecture and observation and observed value of the training in their later aptitudes and contributions during actual flight training. —Alexander McBurney

Average price paid for the June sales group was \$465.

► **Private Transports** — Also 39 Cessna V transports were sold at an average of \$4,393 each, 6 Avian JV two-engine transports at \$5,328 each, and a Lockheed transport (type not stated) for \$14,000. Sales were made to Trans-Canada Airlines and to purchasers in Winnipeg, Iceland, Mexico and South America.

A Link trainer as well as spare parts were also sold during the month.

► **Total Sales**—This brings to 651 the total number of aircraft sold by WAC since its inception last autumn, for a sum of \$1,327,158. Engines, instruments, parts and other components sold during the same period totaled \$1,287,000, bringing total aircraft sales by WAC since its start to \$2,614,000.



FROM THE FIRST BLIND FLIGHT in history when "Jimmy" Doolittle took off,

made a circuit and returned to his starting point by reference to instruments alone, Kollsman Instruments have played a vital part in almost all history-making flights. Just as the development of the first Sensitive Altimeter made possible that first blind flight, other products of Kollsman's continuing research and development in the field of aircraft instruments have played similarly important roles in aviation history.



KOLLSMAN AIRCRAFT INSTRUMENTS

PRODUCT OF

SQUARE D COMPANY

BRIDGEVIEW, NEW YORK

— GLENDALE, CALIFORNIA

Lightplane Airport Bought By Nashville

James Gillespie, owner and operator of Gillespie Airways, has transferred title of his 235-acre airport to the city of Nashville, for \$65,000. Gillespie will continue to operate his flight school repair base and aircraft sales center at the field until Sept. 1, when he will move to an undisclosed new location.

The field, purchased by the city of Nashville, is 2 1/2 miles from the downtown section and fronts for more than two miles along the Cumberland River.

Boulevard Base—City plans for expansion of the field will far development of a recreational center, and a seaplane base on the river. The field adjoins Buena Vista Park, already owned by the city, which has a swimming pool,

plane grounds and other facilities. Present equipment at the field includes a metal hangar housing 35 lightplanes, and an overhead shop. There are two sodded runways, 3,500 feet long, equipped with drainage tile. Proposed enlargements would make each of the runways 6,000 to 7,000 feet long.

Under Gillespie's operation, the field was one of the early Civilian Pilot Training Program airports and conducted, among other programs, the first experimental flight training course for high school students in the south, an elementary glider program, and a special course for ten women instructors, under sponsorship of the Tennessee Bureau of Aeronautics, which was a forerunner of the national WASP training program.

AAAF Service—The field also was the center for a flight training indoctrination course for approximately 21,300 Army air crewmen



First Post-war Taylorcraft—Quantity production of the post-war Taylorcraft RC12 two-place plane, above, selling for \$2,165. FOM Alliance, Ohio, is expected to be attained in September. The plane is a modification of the pre-war two-place Taylorcraft. The four-place Model 15, below, powered with a 125 or 140 hp engine, will be in quantity production by December, selling at \$2,555 to \$2,695.



Plane Theft

Warning to airport managers and operators, to keep unauthorized persons away from planes hangered or tied down on their fields, was given in a recent bulletin from Sheldon B. Stone, Michigan aeronautics director. Although directed primarily to Michigan operators his warning carried an obviously national application. Stone reported "within the past two weeks an airplane has been stolen from a regularly established airport, simply because no one was paying any attention to who came away with what airplane." At the time the bulletin was issued the plane had not been recovered.

"The day is near at hand when this sort of thing may become common. We advise that every precaution be taken to keep unauthorized persons from tampering with aircraft on your field," the bulletin concluded.

Four Non-Flyers Hit By Propellers

Propeller accidents resulting from carelessness, and negligent supervision by pilots, caused serious injury to four persons, according to recent Civil Aeronautics Board reports. Details of the mishaps follow:

GOLDVILLE, TEXAS—Passenger William Edward Freeman, 40-year-old, was killed over the wing strut of a Piper Cub, and the crew pilot, of the same make, was killed. The plane, owned by the Goldville Flying Club, was flying at 1,000 feet, and struck a power line. The plane was flying at 1,000 feet, and struck a power line. The plane was flying at 1,000 feet, and struck a power line.

LOS ANGELES, CALIF.—Propeller of a Cessna 170B, owned by the Los Angeles Flying Club, struck a power line, and the pilot was killed.

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LELAND ELECTRIC COMPANY
Engineering Department Report

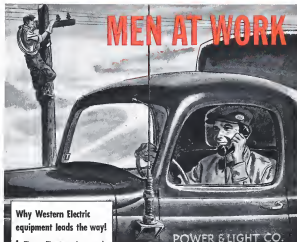
ASSIGNMENT:
To provide airborne power units for radar, automatic pilot, gyroscopic compass, fluorescent lighting, and to operate from main electrical system of aircraft.

SOLUTION:
Leland engineers designed special light weight, highly efficient inverters converting direct current to 400 or 800 cycle alternating current with controlled frequency and voltage regulation. Radio interference was held to a minimum.

NOTE TO AVIATION DESIGN ENGINEERS
This example of Leland Creative Electrical Engineering indicates our ingenuity and ability to solve your specific problems with custom-designed power equipment.

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CREATIVE ELECTRICAL ENGINEERING...
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Why Western Electric equipment leads the way!

1. Western Electric products are designed by Bell Telephone Laboratories—world's largest organization devoted exclusively to research and development in all phases of electrical communication.
2. Since 1889, Western Electric has been the leading maker of communications apparatus. Today this company is the nation's largest producer of electronic and communications equipment.
3. The outstanding quality of Western Electric equipment is being proved daily on land, at sea, in the air, under every extreme of climate. No other company has supplied so much equipment of so many different kinds for military communications.



Western Electric equipment leads the way!

Civil war has spotlighted and proved to all the world the transcendent value of instantaneous communication by mobile radio telephone. In the air, on land and at sea, it has helped to get the job done faster and to save countless lives.

Now at work or men at play, in the years ahead, will find mobile radio telephone an equally efficient means of keeping

in quick, easy contact with business headquarters or with home.

For more than a quarter of a century, Bell Telephone Laboratories and Western Electric have pioneered in the field of mobile radio. When manpower and materials become available, count on Western Electric for the finest equipment for mobile communications service.



Buy all the War Bonds you can
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VACUUM TUBES



COMPONENT PARTS

and three fingers of his left hand. Student Pilot James Brown, who said the plane started when she had tapped the switch "off" and opened the throttle in a continuous motion. The plane was sustained with

CAR FLYING Possible cause of accident was unclear in an hour-long session in which 45 persons participated.

FALLS CHURCH, Aug. 12—Whether that first shock was airborne accident when it occurred, then the pilot of the flying machine at Falls Church, Va., that is, the Federal Aviation Commission, the plane was sustained the plane started in the previous time, at which time it was not of the accident case. Mr. Miller, however, said the plane was sustained the plane started in the previous time, at which time it was not of the accident case. Mr. Miller, however, said the plane was sustained the plane started in the previous time, at which time it was not of the accident case.

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CAR FLYING Possible cause of accident was unclear in an hour-long session in which 45 persons participated.

New York Surveys Present Airports

Since maps map showing location of 156 airports, 39 of which are in Class One.

Fifty-nine of the 156 airports in the State of New York are in Class One, with runways between 1,500 and 2,700 feet, according to the new airport map of the state which has just been issued by the Bureau of Aviation, State Department of Commerce. The map also discloses 10 airports, of which 14 are under military control and not open to the public. Of the 142 civilian fields, 41 are municipally owned or controlled.

The map bears a minimum of printing, only those towns or cities

having airfields being shown. The exact location of the airfield itself is shown rather than of the city. County lines, lakes and rivers are shown but are not labeled to avoid confusion.

"It is strictly an airfield map," declared Leslie A. Bryan, director of the Bureau of Aviation. "It is the first step in arriving at our master plan for airports of New York. This plan, as approved by Commissioner M. P. Catherwood, looks ahead ten years into the post-war era."

The next step in the State's aviation plan will be publication of a digest of laws affecting aviation in New York State.

The state's post-war plan calls for 250 airfields within the next ten years, with the great majority owned or controlled by municipalities.

"We are trying to make airport service available to every community of 1,000 population or more," said Mr. Bryan. "We feel that many of the present Army or Navy airports will eventually be available for civilian use and that many of the present smaller civilian fields will be enlarged."

New York ranked third in the United States in privately-owned planes on January 1, 1946, with 1,266 registered. It is estimated that 100 have been added since then, largely from surplus planes.—M. V. M.

National Air Program Set By Junior Chamber

Multi-talented of public opinion, in support of small airport development, civilian pilot training, and aviation education is the goal of a program announced by the U. S. Junior Chamber of Commerce which will work through its 400

local organizations for these objectives.

Vernon Wells, Las Vegas, Nevada, has been named chairman of the USJC national aviation committee to direct the program. The first of eight regional "mobilization" meetings to stimulate local organization action was to be conducted July 22 in Chicago, by Henry J. Keene, USJC president.

Top Air Officials Sprouting Wings

CAB member solos in latest line of government aviation of fields taking other training indicates hiked flightless interest.

When Oswald Ryan, veteran member of the Civil Aeronautics Board, raised last week at Washington National Airport, he became the first member of the board to get actual pilot experience. But he won't be the last.

Student Dr. Warren Dr. Edward Warner, vice-chairman, has already obtained his student pilot certificate in preparation for beginning flight training, and L. Welch Pope, chairman, was expected to begin his late last week.

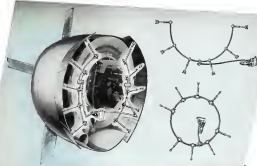
Increased interest of the board members in personal flight may do much to being about an enlightened federal regulation of personal flying during the first critical post-war years.

Meanwhile Commerce Secretary Wallace has approximately 10 hours of solo flight, and William A. M. Burden, assistant secretary of commerce for air, has won his private pilot's license.

» Eclectic Emphasis—The fact that virtually all the flight training of the top officials is being taken in Freesport, may be expected to be reflected in a special interest of top government aviation officials in two-control airport plans, for the private flyer.

The proposed new Part 44 of Civil Air Regulations, already given much a place in advance by planning it as a special category, although that proposal has been strongly opposed by Aircraft Industries Association technical engineers.

» Aeronautical products of the B. F. Goodrich Co. are displayed in a 26-page booklet sent to the company. It is a combined condensed catalog and buyers' guide with engineering data.



How B-29's Keep Down Fever

Here's an inside look at the mechanism that cools the vast flaps on the giant B-29's engines to keep an even operating temperature whether conditions are tropical, temperate or sub-zero.

These cool flap mechanisms consist of Lear Screw Jacks driven by a Lear Power Unit through Lear Hydraulic Shifting. These systems are strong, lightweight and dependable, proved by years of satisfactory service in dozens of airplanes. Lear systems depend

themselves readily in installation in space cramped with other equipment. They are readily inspected and easy to service.

Cool flap mechanisms are a Lear specialty. The company builds more of them than any other manufacturer. And they are proving their reliability in everyday service on many of the heaviest working and most famous types of planes in the air.

LEAR, Incorporated, Page, 214



NEW HANGAR FOR WESTCHESTER: This massive hangar, which will house 150 private planes, is to be erected at the Westchester County Airport, near White Plains, N. Y. Drawings have been taken and construction will start shortly. A number of private planes are now based at this field, which is also a sales center for RUC surplus planes.

All of these planes flying today are equipped with Lear Cool Flap Mechanisms

SEPERMURINE
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CONSTELLATION
Lockheed Aircraft Corp., U.S.A.

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Lockheed Aircraft Corp., U.S.A.

P-80
Lockheed Aircraft Corp., U.S.A.

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[illegible]

NAL Airport Programs
Assigned E. Ellis Bentley

Formerly general manager of airports for the City of Jacksonville, E. Elton Bentley has been ap-



is chairman of the aeronautical committee of Florida Engineering Society, a member of the American Association of Airport Executives, and president of the Jacksonville chapter of National Aeronautic Association.

Gen. Knudsen Elected To GM Corp. Board

Lieut. Gen. William S. Knudsen has been elected a member of the board of directors of General Motors Corp., from which he resigned as president in 1940 to head the Office of Production Management.

He was later commissioned a lieutenant general in the U. S. Army to serve as director of production for the War Department. General Knudson has also been director of the Air Technical Service Command.



AIRLINE EXECUTIVE:

Carlene Roberts, one of the youngest women ever to be elected an assistant vice-president of an airline has been named to that post by American Airlines, Inc. Miss Roberts joined American as secretary to an officer in 1938. A year later she organized the movement of personnel and general headquarters from Chicago to New York when American's headquarters were changed to LaGuardia Field.

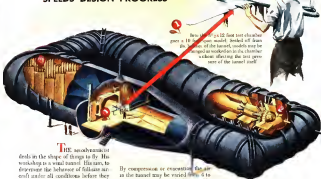
charge of overseas operations in 1942, to become deputy chief, motor transport division, Quarter-master Corps. In February 1949 he was ordered to SHAEP and has since been placed on inactive duty. He returns to General Motors as European regional manager.



of high altitude bombing. He entered the aviation corps of the Army in 1916 and a few years later became the Army's chief test pilot at Dayton. He tested the first turbo-supercharged engine and also was the first to test the use of oxygen in flight.



CURTISS WIND TUNNEL SPEEDS DESIGN PROGRESS



THE aerodynamicist deals in the shape of things to fly. His workshop is a wind tunnel. His aim, to determine the behavior of full-size aircraft under all conditions before they are ever built or flown.

For him, Curtiss-Wright constructed within its Buffalo Research Laboratory the largest, constant variable density wind tunnel ever owned by a single aircraft corporation.



By compression or excavation, the air in the tunnel may be varied from 4 to 60 pounds per square inch to enable tests formerly requiring three or four tunnels.

Here, with no risk to human life and with tremendous savings in the time and money involved in building and





DOES YOUR EQUIPMENT WORK AS WELL IN FLIGHT AS IT DID IN THE LABORATORY?

Modern electronic equipment is carefully and skillfully built to assist our airmen in locating and neutralizing enemy installations, and to guide them safely back to their home base. Laboratory tests are made to assure high efficiency and uniformity in these devices.

However, it has been demonstrated that vibration and shock as experienced in high powered military aircraft can reduce the efficiency of radio equipment as much as 50%, even though total failure may not always occur.

Electronic equipment may even pass laboratory vibration tests only to fail under the continuous beating of long flight missions. Moreover, com-

bat damage to structure may induce vibration conditions undesired of by the radio engineer.

The one type of vibration and shock mounting which will cushion and protect airborne equipment under all conditions has proven to be the Robinson Vibroshock®. It has the reserve capacity to meet emergency conditions, and staying power to outlast the airplane itself.

Newly designed units should be protected by Robinson mounts and their use as replacement mountings on current equipment may almost entirely eliminate servicing problems.

The Robinson Organization is ready to assist and advise on vibration mounting problems.

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VIBRATION CONTROL ENGINEERS

R. O. Bullwinkle Named NWA V-P For Traffic

R. O. Bullwinkle, assistant to the president of Northwest Airlines, in charge of traffic for the past year, has just been elected to the new post of vice-president for traffic. Bullwinkle will direct all traffic and sales activities. In the transportation field for many years, he began his career in commercial aviation in 1926 when he was named traffic manager for the Alaska Division of Pan American Airways. He left this post to join Northwest.

Joseph H. Cassen has been appointed supervisor of international information for American Airlines.



Three years ago Mr. Cassen was closely associated with American's Mexican operations, having set up custom and immigration facilities for air traffic between the two countries upon its inauguration. In the interim he was on special assignment to handle international documentation of personnel assigned to American's Air Transport Command contract operations. Prior to joining American Airlines, Mr. Cassen was with the Chicago Motor Club and before that was with the American Express Company for 15 years, representing them in Europe and the United States.

George A. Irwin has been appointed assistant director of industrial engineering for Transcontinental and Western Air, Inc. Irwin has had wide experience in aviation manufacturing and joins TWA from Consolidated Vultee Aircraft Corp., where he has been chief industrial engineer at the Vultee Plant division.

Make Flynn, after 38 years with the Wall Street Journal, has joined the staff of Pan American Airways in charge of press relations in the Washington area.

Kathleen Anderson, former business of Mid-America Airlines, holds the newly created position of chief stewardess of Alaska Airlines. All flights made with DC-3 equipment will give stewardess service the company said.

H. T. Stager has been appointed chief of aircraft radio customers service of Loew, Inc., in charge of the post-war market for aircraft radios.



ANOTHER STAR FOR STRATEMEYER:

Promotion of Maj. Gen. George B. Stratemeyer, commanding general of the Army Air Forces, Indianapolis theater, to the rank of lieutenant general has been announced. His chief of air staff, Maj. Gen. Charles B. Stone, III, is pictured passing on the third star. On May 31, General Stratemeyer relinquished his post as Air Commander of the Eastern Air Command which he had held since its formation on December 15, 1953. Previously he was deputy commander of the Army Air Forces under General H. H. Arnold.

Headquarters will be in Grand Rapids, Mich.

Arnold G. Weinmann becomes editor of the American Airlines' publication, Flagship.



World and Flagship Press, including James M. Rowland, resigned. Weinmann has been with advertising and sales firms and is former chairman of the Association of Sales House Magazine Association.

Warren A. Freeman has been named supervisor of passenger relations for United Air Lines at Chicago.

Ralph W. Shierley, veteran executive of the Railway Express Agency, has joined RCA in the newly created post of director of cargo sales. He was manager of air export for Railway Express' eastern division.

John A. Parks has taken over the post of station manager for Pan American Airways' Minneapolis-Vulcan gateway in New Orleans, La. He has had many foreign assignments with Pan Am.

G. E. Keenly has been appointed traffic representative for Mid-Continent Airlines in New Orleans. Keenly has had previous passenger experience with railroads and bus lines.

TELLING THE WORLD

Board of directors of Lufthansa, Inc., with plants at Chicago and El

Merile, Calif., have appointed Russell G. Allen, director of sales and advertising. Allen has been manager of sales and has appointment as director given him full responsibility for Lufthansa sales plans both domestic and export. National sales offices are in Chicago.

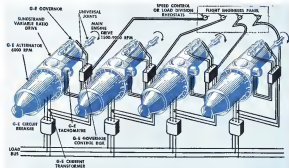
Kellerman Instrument division of Square D Co. has issued standards of passenger cabin reflectors in a folder. This folder is directed to airline executives who wish to "add extra passenger interest and enjoyment" to their flights.

The first edition of the Combined Automotive, Aviation, Agricultural, Marine (AAAM) Service Equipment Manual is now being shipped to the majority of auto dealers for reflection to dealers. Consisting 212 pages of up-to-the-minute service equipment information, the Manual will be sent to approximately 20,000 car dealers. Representatives of the Manual are the bulk of all the service equipment manufacturers in the United States.

IT MEANS LIGHTER-WEIGHT ELECTRIC SYSTEMS FOR AIRCRAFT AND BETTER HIGH-ALTITUDE PERFORMANCE. MAINTENANCE IS LESS BECAUSE ALL YOUR MOTORS ARE "BRUSHLESS!"

Now

400 CYCLE A-C
MAIN POWER
FROM THE MAIN ENGINES DIRECT



Another "impossible" job

has been whipped! Now, large, complex aircraft can have all the long-sought advantages of alternating-current main power. They can have it without the extra weight and expense of separate auxiliary engines, or d-c to a-c converters.

ANOTHER G-E "FIRST"

The 400-cycle a-c system, first developed by G-E with important co-operation from Sandstrand Machine Tool Company, offers a saving in weight over former systems that, alone, is highly significant. Added to this are the important advantages of having 400-cycle a-c motors throughout the ship. The elimination of

motor brushes means elimination of the problems of commutation and brush wear encountered with d-c. Maintenance is reduced and simplified. You get better, more reliable performance at high altitude.

Parallel Alternator Operation

Until now, there has been no way of driving alternators from the main aircraft engines at constant frequency, and paralleling them on a common power line. Engine horsepower on many planes may be 100 times the alternator rating. The individual engine speeds may vary over a 4 to 1 range, with very rapid acceleration. Yet the alternator on each engine must run at constant frequency, must parallel reliably, divide load equally, and maintain electrical stability despite disturbances. To do this, paralleled alternators must be driven, under all conditions, within one or two mechanical degrees of perfect synchronism.

Extensive tests, under severe conditions duplicating those encountered on modern bombers, have convinced critical aircraft engineers that an already existing solution of this tough problem has been found. The sketch at the right shows, schematically, how the new system works. *Apparatus Dept., General Electric Co., Schenectady 5, N. Y.*

→ **TEST LABORATORY** where the new G-E 200-ohm, 400-cycle, parallel system was proved practical. Two 40-hp alternators are driven from 410-hp aircraft engines under typically severe conditions of varying engine speeds, fluctuating a/c line load, and line loads, and their natural parallel operation is a routine everyday performance.



INTERPOSED between each engine and alternator is a hydraulic, variable-ratio drive developed by Sandstrand with G-E's co-operation. A G-E governor on each drive acts as a "master-mind," adjusting the drive to maintain constant alternator speed and to divide the load equally among the alternators. Circuit breakers (which will be remotely controlled from the flight engineer's panel) connect each alternator to the power line at the engineer's discretion. No special synchronizing controls or indicators are needed.

Overcurrent, stall or voltage regulation, differential current rating, engine action rules, and routine load-dividing functions, are provided, although not shown in the sketch.

**PRECISION PRODUCTS
& ENGINEERED SYSTEMS
FOR AIRCRAFT**

GENERAL ELECTRIC

Buy all the BONDS you can—and keep all you buy

THE AIR WAR

COMMENTARY

More Than 800 Superforts Poised For Jap Death Blow

Miscellaneous notes on Pacific air operations outline Very Heavy Bombardment organization, Mustang escort job, carrier-based bomber use, new American and British planes.

When Tokyo radio announced that there were more than 800 B-29's in the Marianas, we weren't kidding. They did not have to carefully count them up, either.

Very Heavy Bombardment Wings have been announced as training the XXI Bomber Command of Maj. Gen. Le May's Twentieth Air Force. These are the 56th and 315th on Tinian, the 3rd on Saipan, and the 34th on Guam, new headquarters of the XXI.

New Wing—At the dedication of the huge Northwest air base on Guam two months ago, the arrival of another wing was indicated.

A VHB Wing comprises roughly 5,000 in total personnel, and is composed of 3 Groups, each of which has 3 Squadrons. Each squadron normally has twelve B-29's, with 6 in reserve—18 per squadron, 54 per group, 162 per wing, 416 for the wing.

Other VHB Wings are in training under the supervision of the pioneer B-29 pioneer, first chief of staff of the Twentieth Air Force, and command leader of the XXI Bomber Command in the Marianas—Brig. Gen. Hayward S. Hansell.

More Might—When these begin arriving at Okinawa to operate under Gen. Curtis LeMay's offshoot of the more than two dozen air airfields now being prepared on that fastidiously busy air base, the 1,000-plane Superfortress armada will not be far away.

Recruiting Mustangs bound on two Japs have a nice timing job to join up with the Superforts from the Marianas, but once they do, the team has the great advantage of having almost exactly the same figure as the most efficient cruise speed of each of its members—346 mph.

Sometimes the escort business works the other way around, with

33 or more P-51's (D's & K's) accompanied by one B-29. Reason for this is that the 150-mile water trip to the main Jap islands would be very hazardous for the light, single-seat fighters, without the benefit of a leading Superfort with its magnificent radar, radar and other navigational and storm-warning devices.

Escort Team—Another escort team has been raising havoc with Jap airfields and installations on Okinawa since early July from new bases on Okinawa. These are Liberator and long-range Thunderbolts (P-47N) of Brig. Gen. "Tommy" White's Seventh Air Force, and a part of General Kenney's Tactical Air Command.

A new model of the Mustang is reported as about ready to join the fighter squadrons of the Fifth and Seventh Air Forces on Okinawa. This is the lightweight, long-range P-51 II.

Lightweight, because ingenious production methods and superior alloys stripped some 700 lb. off the empty weight of the D & K.

Range Increase—Long-range, because by use of an advanced type of laminar flow wing and other improvements drag has been reduced and range increased to well above the 1,450-mile round trip capability of the present Mustang.

The "II" is a triple-thrust fighter, with six 50-cal. machine guns, 10 "zero-length rails" for HYAR (high velocity aircraft rockets), weighing 60 lb., and far more effective than the 4.5 bazooka type rockets, plus two racks for 1,000-lb. bombs, or large drop tanks for extra fuel.

The new Mustang should be the fastest single-engine fighter in the world, but Britain's new Spitfire, projected successor to the Spitfire line, will have to be watched.

Reports have also come in about Marine pilots flying Mitchells (P4A-1 J) off the 560-ft. flight deck of carriers of the Essex class, using jet-assisted take-off (JATO).

Rockets, Too—Besides their battery of eight 30-caliber guns in the nose, bomb loads up to two tons, these hard-hitting medium carry four 60-lb. rocket projectiles under each wing for highly effective attacks against Jap shipping.

The second "J" of the designation indicates jet or rocket assisted take-off, as the "D" in the Marine Corsair (P4C-1 D) means day fighter, and the "N" stands for the night fighter Helcat (P4F-3 N).

Joining with the Fletcher 56th Task Force (Spruance's Fifth Fleet) and the Macdon 38th Task Force of Admiral Halsey's Third Fleet, are carriers of Sir Bruce A. Fraser's British Pacific Fleet under the general operational direction of Admiral Nimitz.

British Fighters—Among the new British-designed aerial fighters will be the Seafox XVII, which is the equivalent of the Spitfire XIV with Rolls-Royce Griffon 61 engine, but with the new bubble canopy of the Seafox XXII.

Top speed is probably 5 percent under the Spit's, or about 435 mph. This is the announced speed of the U. S. Navy's new model of the Corsair (F4U-4), but this is thought to be on the conservative side. Altogether, with Army Strategic Air, Army Tactical Air, U. S. and British Naval Air striking powerful synchronized blows, life in Japan will not be pleasant during the next few months.

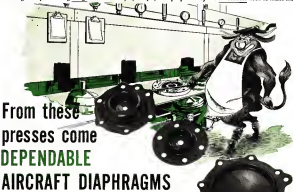
NAVIGATOR

Canadian Airline Pilots Hire "Chosen Instruments"

A retrenchment in the operations of Canadian Pacific Air Lines due to the Canadian government's "chosen instrument" policy has resulted in the release of more than 20 pilots, it is charged by the Canadian Air Line Pilots' Association.

Little possibility for further employment is flying in the Dominion exists for these men, it is said, as Trans-Canada Air Lines is now hiring only reserve pilots. Additionally, CALPA maintains, the Canadian system of staking off all trunk routes and international traffic for the government airline is not going to permit sufficient expansion to absorb the number of returning aviators who will want to continue in aviation.

Man's genius for making things is limited only by the physical properties of the substances used to make them.



● Aircraft diaphragms differ greatly

Some operate in air, others in chemicals or water, and some in various types of gasoline—from 100 octane to 40% aromatic hydrocarbons. Sirvene meets any of these requirements.

All temperatures ranging from —65° to +180° F. diaphragms must be efficient and dependable; they must be flexible to permit careful calibration, yet tough and strong, for long life.

Sirvene meets all these specifications, too.

Extreme care is necessary in making diaphragms, because thicknesses of .010" to .020" are common.

No flaw, however minute, can be permitted. A minor flaw may mean the loss of irreplaceable lines and expensive equipment.

Aircraft diaphragms should be precision built by laboratory-type production methods, and subjected to endless inspections.

That's the way Sirvene diaphragms are made.

But, perhaps, the most important factor that contributes to Sirvene's extreme reliability, is the superior engineering which controls every phase, from the development of the correct formula to meet particular operating conditions, to the finished product.

That's the reason why Sirvene is so dependable.

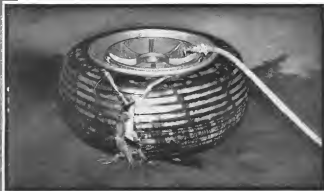
SINCE 1878

...The Chicago Rawhide Manufacturing Co. has specialized in the manufacture of Sirvene leather products for mechanical applications. In 1929, Chicago Rawhide chemical engineers began a program of research, study and experimentation to develop a substance which would operate efficiently under unusual conditions. Sirvene was the result, and commercial production was begun in 1930. Sirvene was then, and has continued to be, the leader in its specialized field.

SIRVENE

THE SCIENTIFIC COMPOUNDED ELASTOMER

A Product of the Synthetic Rubber Division
CHICAGO RAWHIDE MANUFACTURING CO.
1205 Elston Avenue Chicago 25, Illinois



Tire explodes at 635 . . .

Another example of "Building for today, testing for tomorrow"

OUR PHOTOGRAPHER waited hours to take this picture of a tire exploding. As a needle-like stream of water was forced into it, the internal pressure went up . . . so twice as much as the tire would normally need to take . . . three times . . . five times . . . six times.

Suddenly, at a pressure of 635 pounds, it exploded! The picture our photographer had waited so patiently turned out to be mostly a picture of water. But the smaller picture shows what happened. The head and sidewalls, the parts most likely to fail, held until the tremendous pressure tore through the crown of the tire.

Such things shouldn't be done to tires except in test. This tire needed an extra safety factor for a special purpose. But pushing tires beyond endurance, and doing it scientifically, is one method of B. F. Goodrich development. We call it testing for tomorrow. Even ordinary passenger car tires are driven at 160 miles an hour, because they may someday have to operate safely at such speeds.

Airplane tires are tested at greatly multiplied pressures, because tomorrow's planes may require it. Nobody knows how flying conditions may change

in the years ahead. But B. F. Goodrich expects to have tires and other aviation products that meet the conditions—no matter what they are!

Looking ahead—testing for tomorrow—created B. F. Goodrich to produce the first tire engineered and built especially for airplanes, and today more than 80 rubber and synthetic rubber products for airplanes are manufactured by the company. These include De-lucers for wings and other leading edges, ballast sealing fuel cells, grommets, cushions for instrument panels and many others.

Our complete, fully-illustrated catalog is just off the press. Contains latest facts on all types of B. F. Goodrich products for planes. For free copy, write to The B. F. Goodrich Company, Akron, Ohio, Dept. A6, Akron, Ohio.

Skyway or Highway

B.F. Goodrich

FIRST IN RUBBER

German Aircraft Research Seen Far Ahead of Allies

Missions, returning from Reich, indicate 15-year superiority in aerodynamic research; jet transports were next on production line; undersea and liquid type rockets highly developed; winged artillery missiles uncovered.

Information pieced together from the returning military and technical missions to Germany indicates the branches in which German aircraft development excelled, and the reasons.

On the credit side of the German, this information indicates they were ahead of the United States in: jet engines, aerodynamic research, rockets, particularly liquid types; high velocity artillery using winged missiles; high speed torpedoes, supercavitic and transonic research. An excellent quality and abundance of tools, both for production and testing, were also found.



G-E JET ENGINE

First picture of a jet engine released by the Army Air Forces shows technicians completing work on a G-E jet powerplant of the type used on lightning swift AAF planes. Still another engine, the Super G-E jet also is being built by General Electric. The front of the engine with its main starter motor and other connections is forward. Just inside the front cover shield is a compressor which sweeps air to combustion chambers.

Debatable Leadership—One U. S. aircraft authority contends that the German scientists were as much as 15 years ahead of the United States and allies in aerodynamic research, although this issue always touches off sharp debate whenever it is raised among aeronautical engineers and designers.

Some reports indicate the Germans were at least two years ahead in research on jet and gas turbine engines, although American engineers have made rapid progress in the last two years.

What was important on the German angle, however, was that

they had jet engines in volume production, the Bavarian Motor Works having turned out several thousand BMW-800, and Junkers having produced many others, the Junkers-004. Those in production were no better, if as good as the present U. S. jets, but they were in volume production and they were good enough to work.

Victory Engines—There are some authorities who contend the German jet engine production was so far advanced that the course of the war might have been altered had not the AAF struck down German transportation when it did.

In Bavaria there were many jet engines awaiting shipment to assembly plants and only 200 miles away there were raw Messerschmitt ME-262 and other jet fighters and bomber engines ready to go on engines were installed. The blasted highways and railroads kept them apart.

Now jet engines still in the laboratories and design of new surfaces indicated that soon the German would have had ready a huge bomber or transport that could be thrust across the Atlantic by jet, hours under present crossing time.

Submarine Rockets—In another field, the Germans had developed high speed torpedoes and underwater rockets to a high degree and one of the outstanding developments ready for production was a high velocity artillery weapon that developed tremendous muzzle velocities. Upon leaving the smooth-bore barrel, the projectile became a winged missile which was reported exceedingly accurate over a long range.

The advanced stage of German research in high speed was particularly impressive to some American observers. At one point on the Austrian border there were two continuous flow supersonic wind tunnels being used in the development of high velocity properties. They were said not only for rocket fired projectiles, but also for artillery fired missiles.

An interesting technique reported in this research was the photographing of air flow around the model with a complex and accurate optical instrument. It was placed inside the tunnel and recorded in continuous sequence the stages of airflow around the model.

Tools—Another characteristic of German development which has impressed other observers was the abundance of high grade machine

P-51 Mustang by Douglas

THE EXCITING NEW ERA of air travel comes ever closer as airlines unfold new plans. PCA (The Capital Airline) is among those planning to offer new itineraries, speeds and travel opportunities. Now serving many important industrial key cities, PCA will soon extend its system into New York, And when conditions permit, PCA routes will be served by such modern transports as the new Douglas luxury liners.

These new transports will be equipped with

PESCO precision pumps for propeller feathering, for air, fuel and hydraulic systems. Thus, the products of PESCO experience in meeting exacting demands for military aviation will continue with outstanding performance for commercial aviation. And, by adapting this same equipment, other industries will find expanded uses for Pressurized Power and Controlled Flow by PESCO. Write for descriptive literature . . . PESCO Products Co., (Division Borg-Warner) 11610 Euclid Ave., Cleveland 6, O.

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PERFORMANCE POINTS TO FIRST



"You're an Angel...with wings!"

Ambulances fly in this war, and their flight brings swift evacuation of the wounded from the area of front line danger. And because ambulances fly, the wounded are rescued, not days, from the clean sterile mercy of base hospitals.

Flying ambulances lend wings to the skills of doctors and nurses. For doctors and nurses and medical equipment go with the wounded in these hospital wings of the air. The skill of transportation engineers and medical science have thus combined to save lives and bring swift mercy.

Fairchild ingenuity, for example, gave the Army Air Forces the "Pocket"—a plane in which men and machines can be carried into battle. But the "Pocket" is a ship of mercy too, convertible in a few minutes to

a plane ready to reverse the voyage of enemy action.

Known to the Army as the C-52, the language "Pocket" can carry 30 litter cases, four stretchers and medical supplies. Grouped quarters do not hamper nurses ministering to the wounded. An ingenious litter suspension affords ample room for movement. So successful is this transportation device, developed by Fairchild engineers, that it has become standard equipment on all types of planes used as flying hospitals.

Versatile in its applications, the "Pocket" can do double duty on a mercy ship. It can carry the wounded from front line evacuation fields over long distances to base hospitals. Returning to the forward area, it can carry up to one ton of supplies needed at the front lines.

Fairchild Aircraft

Division of Fairchild Engine & Airplane Corporation, Hagerstown, Maryland

THE ARMY NEEDS NURSES

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look. Many of them, particularly testing and inspection tools, had elaborate finishes.

Inspecting and testing was developed to a high degree, probably due to the presence of slave workers and the consequent possibility of sabotage.

Research Demands Increase In Britain

Amendments to our laws regarding post-war aircraft development projects among many new calls for stepped-up attention to research.

Post V-E Day appraisals in England of that country's wartime industrial effort are developing the same call for a stepped-up, consistent research program that is apparent in the United States.

Among the suggestions advanced in Britain is one for an amendment to the tax laws to encourage greater expenditure by private industry on research.

While a similar move in the United States involves the method of carrying the research items on a company's books (AVIATION NEWS, July 16), a proposal by Lord Davidson, head of the Engineering Industries Association, would grant tax rebates only to those British firms which made the fruits of their research available to all industry.

Illustrative of the need for government decision on the matter is the revelation that one of the largest British aircraft manufacturers, de Havilland Aircraft Co., produced in three years approximately \$205,000,000 worth of aircraft, engines, and propellers, but has left only about \$300,000 for both reserves and distribution to shareholders.

With other concerns faced with similar low cash reserves, the need is urgent for measures making possible extensive expenditure on research, if British industry is not again to fall behind.

Although privately-financed aircraft research developed both the Hurricane and Spitfire before the war, a general deficiency in research increased both the cost and length of the war; it is charged in a recent report by the government's Select Committee on National Expenditure.

In addition, the document asserts, Britain was harmed because adequate steps had not been taken to maintain during the years of



CORSAIR ARMAMENT

This view of the Corsair F4U shows the installation of part of its armament, the 20 mm. cannon.

place a nucleus of skilled men which could be expanded when war came.

Bendix Plans Post-war Baltimore Plant Projects

Post-war plans to use its two Baltimore plants in the manufacture of radio and electronic equipment, both for home and industrial use, have been partially revealed by Bendix Aviation Corp. While expressing the conviction

that programs being formulated will result in a post-war business for its Baltimore installations "many times greater" than pre-war volume, the company has not spelled out the effect on employment Bendix Radio, and Frac Instrument division, before the war had a total employment of roughly 3,000, which has soared to approximately 13,000.

World Center—Blower, Ernest R. French, company president, told a recent director's meeting, plans envision a continuance in possession of the city's wartime position as one of the world's important centers of research and development in electronics.

New Almoie

A war-developed aluminum alloy combines lightness with exceptional strength in replacing steel as armor protection in B-28's. Hercules Metals Company, creator of 1936, the new metal, declares the use of its fabrication also contributes to its usefulness in Superfortresses.

A composite alloy consisting of a high strength aluminum core clad on each face with corrosion-resistant aluminum alloy, 1936 has a tensile strength of 64,000 pounds per square inch.

Varied Uses—In addition to its use in aircraft, present and projected, the alloy has already been employed in construction of all-metal box cars, and is suitable for trucks and buses.

Monthly Pace Is Set For Conversion Plans

Conversion of 16 military transport per month for commercial use is anticipated by Douglas Aircraft Company at its four authorized conversion and overhaul centers.

To date the overhaul companies, which began setting up modifications less than two months ago, have completed nine conversions. Grand Central Airport Company, Glendale, Calif., has delivered two, Tuxon Aircraft Corp., Van Nuys, Calif., two, Globe Aircraft Company, four, Canadair, Ltd. of Montreal has delivered one.

New Fleet—Some concern may be expected to be felt by other-

non companies over the life prospects of this phase of the aircraft industry in view of the fact that Douglas Aircraft Company now is in heavy production of Army C-117s at Gadsden, Ala. and there is excellent prospect that in the near future large numbers, fully outfitted with airline seats, may be declared surplus and be released to airlines.

Mexican Plant Opened By Aircor Radio Corp.

Aircor Manufacturing Corp. has formed a Mexican subsidiary known as Aircor S. A. and has opened a plant and sales office in Mexico City.

Rendolph C. Walker, president, said the Mexican subsidiary has obtained a contract for a complete radio communications system for Comandante Andres de Bess Crut. The equipment, which will be manufactured by Aircor at its Kansas City plants, is of the same type which the company has supplied for installation at airports throughout the world in connection with the war production program.

► **Rail Project**—Aircor engineers

are currently making a test installation of the company's railroad-radio-telephone equipment and space radio on the Mexican National Railways.

AAF Surplus Tires Sales Shift Shown

GPA price order reveals Commerce Department has taken over disposal; Superlatency sales set to go at \$25.00.

Change in AAF methods of disposing of surplus airplane tires is revealed in an GPA order setting pricing plans for such disposal by the Commerce Department's Office of Surplus Property.

Formerly, such tires were sold as scrap by the Air Force, but they recently were declared surplus and turned over to Commerce in the belief they could be "converted" for use on farm vehicles. Now the tires happened to wind up in Commerce—the disposal agency for consumers' goods—in a source of official wonderment at that agency.

► **Last Resort**—Most reasonable explanation is that Commerce's

surplus property office includes an extensive tire and tubes division and presumably the cast-off aircraft tires were directed that way for want of any other likely disposal source. Officially, however, are plainly puzzled as to what kind of a farm machine could take a tire such as used on a heavy bomber.

Another feeling is that other agencies wanted to get "out from under" in the handling of such a politically touchy subject as tires—regardless of size. Initial cost of some of the tires ran into hundreds of dollars. In contrast, the highest GPA ceiling is \$25.34 for a Superlatency tire.

Commerce will dispose of the tires only to in-the-trade distributors from its warehouses at Mogadore, Ohio, and Ontario, Calif. The initial lot to be offered by the new GPA ceiling totals 18,657 tires.

Restricted Air Data Readied For Public

Preparations are under way for the release of information on government scientific and technical developments during the war, which heretofore have been in the restricted class.

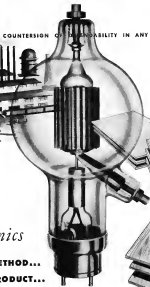
The facilities of the Office of War Information have been made available to the newly-organized Joint Board on Scientific Information Policy for the handling of such information. That joint board will be responsible for the organization and release of scientific and allied information for the Office of Scientific Research and Development, the War and Navy Departments, and the National Advisory Committee for Aeronautics.

► **Tate Chairman**—Chairman of the Board is Dr. John T. Tate, division chief, National Defense Research Committee, OSRD. Among the board members are Dr. George W. Lewis, director of aeronautical research, National Advisory Committee for Aeronautics.

The Joint Board has been created by concurrent action on the part of the Secretaries of War and Navy and Dr. Vannevar Bush, director of OSRD, with the consent of the chairman of NACA and the director of ONR. Its creation was in accordance with the recommendation of the Joint Committee on Scientific Information Policy, consisting of the Secretaries of War and Navy and the OSRD director, to study the prob-



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Eimac
TUBES



FRENCH AIRCRAFT ON THE WAY:

The French aircraft industry is now working at about 20 percent of normal capacity on both new construction and repair work for the Allied air forces. Two of the craft reported in production are (above) the Latécoere 621, a 75-ton flying boat designed for transatlantic traffic and (below) the Junkers 52 (French).



len of supplying the general public with authentic and useful information on wartime scientific developments.

Basic reports of the board will include such fundamental subjects as development of radar, rockets, metallurgy, jet propulsion, and aircraft design.

New Contract Halt Plan Used By Navy

Pre-termination agreements signed with Eastern Aircraft designed to avert industry problems in advance of cancellations.

A pre-termination agreement designed to settle in advance many of the problems involved in contract cancellations has been signed between the Navy and the Eastern Aircraft Division of General Motors Corp.

Looked upon with favor by the aircraft industry as a favorable development in sweeping away some of the uncertainties of termination, the Eastern Aircraft agreement is the first of its type negotiated by the Navy. It establishes alternative "stop work" points, covers method of taking inventory, classification of inventory, sales by contractor, treatment of completed stocks and agreed percentage of profits.

Details Anticipated.—The agreement also deals in detail with the inventory sheets, the determination of the disposition of inventories and the all-important question of clearing the plant of components, special equipment and government-owned equipment.

One feature puzzling some industry figures is the inclusion of

Canada's B-29

Canada's Munitions and Supply Minister Howe has announced that the *Lockeds*, British equivalent of the B-29 Superfortress, will start rolling off the Toronto production lines of government-owned Victory Aircraft Ltd. early in September.

With the entire output slated to go to the RCAF for operational aerial power, a monthly goal of 30 of the huge bombers has been set. Prior to conversion to the *Lockeds* schedule, Victory had aimed a rate of 30 *Lockeds* per month.

A provision that any new contracts awarded the company "may" be included in the agreement. Opinion is that production under new contracts, or the terms of such contracts, might make the pre-termination agreement inapplicable.

In announcing the arrangement with Eastern Aircraft, the Navy emphasized that it did not indicate the likelihood of early termination of Eastern Aircraft's contract.

Reconversion Aid.—The pre-termination agreement covers contracts for approximately \$43,000,000 in undelivered airplanes and was designed to facilitate the settlement of war contracts and reconstruction of a war contractor's plant to other production when the Navy no longer requires certain war materials.

The Navy will terminate the contracts with Eastern Aircraft division at any time it decides that additional airplanes of the type being produced there are no longer needed. In advance of cancellations, however, it has been possible to come to agreement on several basic questions, a plan suggested in the past by some aircraft company executives.



RETREAD FOR THE C-47

Aircraft tires retreaded at the new repair plant at San Bernardino ATSC show remarkable wearing qualities. This C-47 new has made more than 100 landings since it was retreaded and appears capable of many more.

It was emphasized by the Navy that execution of the agreement does not indicate that there is necessarily a likelihood of termination of its airplane contracts in the near future.

New Propeller Design Engineered In Canada

A new design for aircraft propellers has been engineered by the propeller plant of Canadian Car & Foundry Ltd., Montreal, and the company has been awarded contracts after exhaustive tests in the United States and Canada.

The wooden propeller embodies a new principle in propeller design and construction, sharply stepping up quality, durability and performance.



A NATURAL PEACETIME STEP— TO AN ALL-METAL SILVAIRE FROM AN ALL-METAL FIGHTER!

SPYGLASS MODEL, 40 H.P.

When wartime pilots return to peacetime pursuits, they'll naturally choose for their personal use, an all-metal plane. For aerial warfare has proved this all-metal plane construction causes greater durability, added air speed, extra economy of operation.

Luscombe's whole history has been one of utilizing metal in aircraft. Luscombe pioneered with an all-metal light plane—the SILVAIRE. And since war was declared, Luscombe has played an important part in the fabrication of aerial pursuit for many famous fighter planes including the

"Hellcat." You may be sure the vast experience gained from years of all-out war production will result in Luscombe's offering a new, newly improved all-metal SILVAIRE—a postwar personal plane designed for a great future.

JML-C-12-B

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Or for literature in a Luscombe SILVAIRE directory

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STREET _____
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Variances In International Design Assailed

Long-standing differences in Anglo-American engineering practices and standards of measurement will be discussed at a conference in Canada this fall under auspices of the Combined Production and Resources Board, of which the United States, Canada, and Great Britain are members.

The board points out, for example, that it has been estimated that historically-based differences in the design of screw threads alone in Britain and the United States, have added at least \$100,000,000 to the cost of the war.

Scrap Problem.—Aircraft engineers, while hopeful that some-

thing can be done to reconcile the differences, point out that changes in design and the scrapping of millions of dollars worth of machinery set to present standards.

From the United States, at the conference, will be representatives of the Army, Navy, Air Force, Bureau of Standards, and the American Standards Association, as well as from the automobile, aircraft and other industries. The National Standards Committee, which handles design matters for the aircraft industry, will be represented by the American Standards Association and will not have direct representation.

Three Billion Mark Passed By Aircraft Industry Assets

Warlike growth of manufacturers boosts holding to ten times peacetime level, Securities and Exchange Commission study of 1939-43 balance sheets shows; working capital is five times pre-war size.

Study by the Securities and Exchange Commission of "Balance Sheet Data, 1939-1943" of corporations filing annual reports under the Securities Exchange Act of 1934, or the Securities Act of 1933, presents an interesting picture of the tremendous growth that has taken place among aircraft and aircraft equipment companies during the war.

Assets for 31 aircraft and aircraft equipment companies at December 31, 1943, reached a total of \$3,932,664,000 as compared with \$77,498,680 for 28 companies at December 31, 1939, a growth of 10 times the pre-war total.

Working Capital.—Of these total assets at the end of 1943, current assets aggregated \$3,899,166,250 as against current liabilities of \$2,121,284,600, while at the close of 1939 current assets of \$233,253,000 compared with current liabilities of \$152,045,000. Thus, working capital at December 31, 1943, of \$1,777,881,650 was more than 12 times the \$1,178,000 reported at the close of the fiscal period ended 1939.

Balance sheet items making up current assets show interesting growth over the five-year period as disclosed in the following tabulation:

| Number of companies in each group | 1939 | Year ended December 31 | | | |
|-----------------------------------|------|-------------------------------|-----------|-----------|-----------|
| | | 1939 | 1941 | 1942 | 1943 |
| | | (Dollar Figures in Thousands) | | | |
| Cash and cash items | 10 | 101,428 | \$98,414 | \$129,051 | \$119,760 |
| U.S. Government securities | 11 | 1,132 | 5,445 | 10,000 | 10,000 |
| Trade receivables* | 25 | 12,479 | 129,170 | 100,875 | 109,729 |
| Inventory | 25 | 12,479 | 129,170 | 100,875 | 109,729 |
| Other current assets** | 21 | 28,171 | 21,571 | 21,581 | 21,581 |
| Total | 72 | \$155,217 | \$254,700 | \$252,587 | \$261,199 |

* Included in "Marketable Securities" in 1939 and 1941.

** Other current assets include: "Prepaid expenses" in 1939.

Dividends.—The SEC survey indicates the companies maintained conservative dividend payments throughout the expansion period. Dividends on common stock, for example, totaled \$19,255,000 for the year 1939, including \$13,666 paid in stock. In 1943 this sum

had but little more than doubled to \$29,061,000, including \$20,000 in stock. Payments on preferred shares rose from \$3,667,000 in 1939 to \$2,300,000 in 1943. The course of dividend distributions may be seen in the following comparison.

| Preferred Company | 1939 | Year (Dollar Figures in Thousands) | | | |
|-------------------|------|------------------------------------|---------|---------|---------|
| | | 1939 | 1941 | 1942 | 1943 |
| | | (Dollar Figures in Thousands) | | | |
| | | \$1,217 | \$1,000 | \$1,000 | \$1,000 |
| | | \$1,217 | \$1,000 | \$1,000 | \$1,000 |

* Includes dividends on common stock in 1939-1941; in 1942, 1943 and 1944.

Increased surplus rose steadily over the five-year period from \$37,388,000 in 1939 to \$379,926,000 in 1943. In 1940 earned surplus was \$168,367,073, in 1941 \$261,652,686, and in 1942 \$310,371,860.

Capital surplus was \$71,356,000 in 1939; \$96,767,000 in 1940; \$96,368,000 in 1941; \$103,363,000 in 1942; and \$92,301,000 in 1943.

Individual Reports.—Some of the

individual manufacturing companies showed sharp growth over the period under survey.

Lockhead Aircraft Corporation, for example, grew from a company with total assets of \$15,547,000 in 1939 to one with \$363,440,000 in 1943. Consolidated Vultee Aircraft Corporation jumped from \$10,029,840 total assets at December 31, 1939 to \$393,331,000 at No-

vember 30, 1943. Douglas Aircraft Company, Inc. rose from \$84,564,000 total assets in 1939 to \$167,000,000 at the end of 1943. Cessna-Wright Corporation grew from a company with total assets of \$21,985,800 at the close of 1939 to one with \$783,197,000 at December 31, 1943.

The Glenn L. Martin Company's aggregate assets were \$31,261,000 as of December 31, 1939, but by the close of 1943 the firm had reached \$275,178,000. Other companies displayed similar growth. North American Aviation, Inc., jumped from \$22,841,600 to \$220,000 in the five-year period, while Republic Aviation Corporation rose from \$5,375,300 to \$67,474,000. United Aircraft Corporation showed a rise from \$67,047,000 to \$232,196,000.

Jacobs Engine Co. Files Fiscal Report

Jacobs Aircraft Engine Co. paid its president, C. J. Abbott, \$30,383 for his services during the fiscal year ended Dec. 31, 1944, according to the company's annual report to the SEC.

Albert R. Jacobs, vice-president, received \$27,566, during the same period, and J. Andrews Harris, 3rd, chairman of the board, \$35,553. Donald E. Turner, another vice-president, got \$23,808.

Under a contract for management services, which was terminated as of Dec. 31, 1944, the company paid the firm of Ford, Bacon & Davis, Inc., a fee and per diem charges for the services of certain of its employees, including Abbott and Turner, amounting to \$105,000.

The Philadelphia law firm of Ballard, Spahr, Andrews & Ingersoll was paid \$44,000 for legal services during the fiscal year, and the firm of Matheson, Aitken & Co., \$25,000 for accounting.

The company's sales amounted to \$53,394,605 during 1944, the cost of which was \$46,639,024, leaving a gross profit on sales of \$6,755,581. Administrative, engineering, field services, advertising, selling, and other operating expenses amounted to \$1,763,806, leaving a profit from operations of \$5,001,775.

After making provision for federal and state income taxes, excise and profit taxes, the company showed a net profit transferred to earned surplus of \$1,047,795.

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ANOTHER ACHIEVEMENT OF NATIONAL'S TECHNICAL SERVICE

Diagram shows turbulence effect on air flow on upper surface of an airfoil when turbulence is caused by lack of fluidity of screw heads.



This diagram illustrates how turbulence is reduced when streamlines of surface is established by use of Laminar Flow Screws.



Streamline effects are made in comparison graphs to make sure that your heads are really smooth.

—Robert E. Knapik

"Laminar Flow Screws" are National's answer to the demand of aircraft designers for flush head screws on exposed surfaces of planes. With ever higher speeds, it has been found that turbulence created by screws and rivets caused a serious drag and loss of effective horsepower. The best tolerances produced by the usual and normal methods of screw making simply were not close enough.

We have developed a method of manufacturing screws to the close tolerances required. When checked in a comparison gauge representing the contours and angles of the plane's outer skin, our "Laminar Flow" screw heads will check from flush to a millionth of .000" maximum on screws up to 3/4" dia. and .005" on screws of 1/8" and 3/16" dia.

This is one of many instances where National Technical Service has produced a better fastener or has found a way to produce more, faster, at lower cost. We welcome your inquiry.



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HEAD-ON ATTACK THREAT

Experimentation in combating bombing raids by our flyers had taught the enemy that one of the most effective means of attacking our heavy bombers was head-on attack... A tail turret from a Liberator was mounted on the nose... It worked so well... Emerson was commissioned to design and build a permanent type of nose turret for the B-24.

Reproduction of an extract from
a St. Louis Globe-Democrat feature
article, February 22, 1942.

A Tail Turret Goes to the Front • • • at EMERSON-ELECTRIC

Converting a new Emerson-Electric B-24 Turret, from a tail to nose mounting, quickly, could be effectively done only against an extensive background of knowledge... knowledge acquired by Emerson-Electric in becoming one of the world's largest manufacturers of airplane turrets... This particular assignment was completed and put into production, to meet new combat requirements, without interruption of an already tight delivery schedule.

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View in the Armament Engineering Division
of Emerson-Electric

TRANSPORT

Airline Spokesmen See Chaos In ODT Plane Pool Proposal

Priorities system cited as capable of filling same needs in redeployment program; Senate group hopes request that 1,000 Europe-based DC-3's be returned to solve problem; lines claim move would shatter efficiency.

By MERLIN MICKEL

Disclosure that the Office of Defense Transportation has discussed with the War Department the pooling of airline planes to aid in troop redeployment brought a general response, from air transport sources, that only chaos for the domestic air carriers could result from such a course.

In addition to the effect on the airlines, efficiency of such a move was questioned and the point was made that the priorities system could be utilized to attain the same result.

Airline Decision—Statements last week before the Senate Committee by Col. J. Monroe Johnson, ODT director, were that such a step has not been decided upon definitely. Understanding is that the decision whether the Army shall use commercial planes under a pooling arrangement, similar to that in effect for Pullman and coaches on the railroads, was left to the War Department. Under executive order, ODT has control over all civilian transport and would have authority to effect such a plan.

Authoritative sources indicate that about 75 percent of airline passenger traffic now is military personnel flying on priority, compared with 52 to 55 percent two or three months ago. A large part of this consists of men on leave, but priority officials point out that by substituting one type of military traffic for another, the program easily could be swung over to men being redeployed. It was conceded, however, that this might require some changes in airline schedules. Johnson reported to the Senate (Mead) War Investigating Committee that the War Department has been directed to study the place of the civilian airlines and the Air Transport Command in troop redeployment in this country. He said ODT has a tentative plan

that would call for pooling by the airlines of a given percentage of their capacity for the movement, expected to reach its peak by next February.

European 'Waste'—Members of the Committee outlined a proposal to bring pressure on the War Department to declare over 1,000 DC-3 type planes in the European theater as surplus, and have them brought to this country to help in redeployment, after senators in the group returned from a recent European tour with reports that the Army lacks air transport in the OTD for non-essential courier and personnel uses.

One of the Senators, Mitchell (D-Wash.), who contends these ships could be brought to the U. S. for short run redeployment move-

Redeployment Rate

More than 1,000 men a day are now being flown into Mexico in the redeployment program, with planes landing on an average of every 48 minutes.

Principal movement is by C-47's operated on the segment of the route from Tijuana. The men are then processed and moved by train to Camp Blanding in Utah. Plans for final landing.

The operation—popularly known as the Green Project—so far has been hindered without reported incident, with probably 500 planes being used over the South Atlantic route. It is expected to be stopped up still more, especially when North Atlantic weather hampers northern operations later in the year.

ments, Mitchell said the Army also is using large transports, suited to trans-Atlantic flights, for short haul service in this country. The Committee expects to call ATC officials to testify during the current investigation.

Johnson reports that more than 30,000 men per month are being redeployed from Europe by air, the figure for June being 35,000. The ODT chief was enthusiastic about the suggested return of 1,000 DC-3's, which he said would be "very helpful." Whether they would be



CONVERTED FORTRESS FOR SILA SURVEY.

This converted Flying Fortress is being used by Swedish Intercontinental Airplane (SILA) in survey flights between Stockholm and New York via Iceland and Labrador. First round trips are being made, with survey leading flights at New York greeted by Civil Aeronautics Administration. American Export Airlines is U. S. agent for SILA during the survey period. The line plans to start regular service under a group arrangement with Norway and Denmark at an indefinite future date.

C-54 Test Slowed

Certification tests of the Douglas C-54 have been delayed, and presumably will depend upon an airborne-Army-Douglas agreement on the particular version of the C-54 to be selected for commercial production. CAA has been ready for more than a month to begin testing a C-54 for airworthiness.

operated by the airlines or ATC, in the event of their return, was understood.

Airline sources foresee manifold difficulties in the suggested pooling of airline planes, gone through—difficulties which might result in complete discontinuation of scheduled air transport. They say this:

• An immediate maintenance problem would arise, since mechanics would have to be concentrated at redeployment points. Parts and equipment would have to be gathered together.

• Presumably the bulk of the operations would be on east-west flights, which might run into a shortage of qualified captains for these transcontinental runs and necessitate a large number of familiarization flights.

• A new burden would be placed on airports, many of which already are pressed to capacity.

• Plane utilization, which is expected to average about 1,200 miles per day, per plane, by Aug. 3 on a country-wide basis, probably would drop sharply.

First Air Freightier Flight Cost Statement Made For C-82 Packet

Direct operating cost of under 7 cents per ton-mile, for non-stop trips up to 500 miles, announced as second production model for Army comes off Fairchild line; figures based on ATA system.

First announcement of direct operating costs on Fairchild's C-82 Packet was made recently as the second production model under Army contract came off the line. Running under 7 cents a ton-mile for non-stop trips up to 500 miles, the cost figures are also the first disclosed for a ship of this size.

The C-82 "wing boxcar" carries nine tons on a 590-mile trip and 6% for 1,586 miles in military operations, where it is not subject to Civil Air Regulations. Capacity is 92 percent of the cubic content of a railroad boxcar.

• **ATA Measure**—Fairchild's calculations, made by Air Transport Association methods, include no indirect or overhead items.

Direct flying cost ranges from 4.63 cents per ton-mile for a 100 mile trip with a 16,113 lb payload to 9.84 cents for a 1,500 mile trip with 9,533 lb payload.

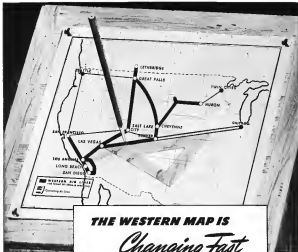
Considerable interest in the ship has been shown by airlines, although it is being built only for the AAF, for whose Troop Carrier Command it was designed.

• **Dallas Production**—Fairchild does not expect to turn out as many of the ships at its Hagerstown, Md., plant as will be built at Dallas by North American Avia-

tion. The latter plant is larger, but at present is just making up, with the first Packet due in December.

The prototype first flew at Hagerstown last fall (Aviation News, Oct. 30, 1944). Fairchild's contract was awarded in June and changed to a fixed price basis from cost-plus-fixed-fee. The first production model was finished in May and flown to Dallas in June. The purchase of North American in the past means that minor changes can be made by the designing manufacturer at the source and passed on to the larger-scale producer.

Important feature of the plane, which weighs 18,000 lbs. empty and 38,000 loaded, is its ability to take off in 800 ft. at 45,000 lbs. gross weight. The plane originally was designed to operate in small North American landing fields, after the evictions of the German aircraft. It was never used for that purpose, however, and instead has become what Fairchild believes is the first equipment actually designed for airborne warfare. It can carry 90 percent of the equipment of a standard transport infantry division, and is large enough to accommodate trucks,



• Western United States today is a new force to be reckoned with in the economic and industrial pattern of the nation. For, out here is 60% of all hydroelectricity, 50% of the aluminum capacity, 34% of magnesium, 80% of all non-ferrous metals. Here, too, is produced 1/3 of all fresh vegetables, 50% of the total frozen foods, 61% of fresh and canned fish. Petroleum and wood develop great wealth themselves, are source industries in the new chemical fields.

Sweeping changes in air transportation have kept pace. As typified by Western Air Lines, air transportation has furnished the great distances, speeded communications. Today, Western Air is all-out to finish off the job. Tomorrow, through route extensions and new lines applied for, Western Air will help complete the transformation of the West.

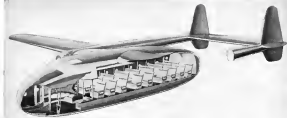
General traffic office: 510 W. Sixth Street, Los Angeles 14



Outside and inside the C-82: Picture of the C-82 Packet in flight shows how the box-like fuselage is carried between the twin booms. Interior shows, looking towards rear, shows square construction. The

two small "jump doors" for paratroopers are out in the double rear doors which open to full width when the ship is to be loaded or unloaded. A side loading door is at the forward end of the cargo compartment.





Possible "Packet" Passenger Version: This cutaway drawing by Fairchild Aircraft Engineers shows the Packet fuselage as it might look if converted to passenger use. Seats are arranged to carry 25 day passengers. Baggage would go under the seats, which

are above floor level. The nose, longer than on the C-123 cargo version being built for the Army, contains a lounge with bar and buffet in the fore compartment. The drawings are preliminary, and merely represent a suggested passenger arrangement.

bowtowers, tanks, and bulk tanks.

► **Clear Space:** Interior is squared and unobstructed. Floor is level at truck height. The ship has a tricycle landing gear, and its high tail surfaces permit the entire rear to be opened for quick freight handling.

It can carry 45 fully-equipped paratroopers, who can jump from a door in each side at the rear end of the shipstream and with no danger of striking the tail. Or it could be converted to a 34-tritter hospital ship. It can be used to tow gliders.

Now air ducts are built into the wings and tail surfaces to provide an anti-icing system that works on either or both engines, and the manufacturer says the Packet is the first ship to go into production with such a system.

► **Military Tests:** Weight and performance figures are based on preliminary flight tests with full military equipment. None are available on commercial operation under FAR, since the plane has not been fitted for such work although Fairchild officials believe such a

change would be entirely practical.

Stalling speed is reported at 70 mph, with full flap and landing gear down, and a 42,000 lb load.

► **Crew in five:** for military and two for commercial operation. Two Pratt & Whitney R-2600C engines, with 2,100 hp each at 2,500 rpm, provide the powerplant. Propellers are Hamilton Standard full-bladed, hydroelastic, three blades, 18 ft. 1 in. diameter. Landing gear is tricycle and fully retractable. Construction is aluminum alloy throughout with fabric-covered control surfaces.

► **Cargo compartment capacity:** 2,470 cu ft. Gross weight: provisional, 46,000 lbs.; design, 42,000 lbs. Empty weight, 26,000 lbs. Useful load, 25,000 lbs. Maximum payload, for 480 miles, 16,000 lbs. for 1,000 miles, 15,500 lbs. for 1,500 miles, 13,800 lbs.

► **Cruising speed, over 200 mph.** Takeoff run at sea level, loaded, 400 ft. Service ceiling, 25,000 ft. Single engine cruising, 2,500 ft. Maximum range, 4,500 miles.

TACA Leases Lodestars

TACA Airways has acquired 8 additional Lockheed Lodestars for use in Latin America and on the company's international routes to Miami and Mexico City. Four of the planes is expected to go into service late this summer.

Two of the aircraft, obtained under lease from the U. S. Government, will replace fixed-fee airplanes being used on cargo service to mines in Nicaragua.



From the flight—look how close.

Packet Economy Statistics

Fairchild Aircraft engineers show the direct flying costs on the C-123 Packet, shown in the table below, are the lowest for any rotating two- or four-engine transport cargo operation for non-stop trips up to 500 miles. The figures do not include indirect or

overhead costs, but cover cost of fuel and oil; plans and engine depreciation; overhaul and ground service; pilot and co-pilot pay; crew expenses; and plane insurance. They are based on 100 percent load factor.

SUMMARY OF DIRECT OPERATING COSTS

| Top Lodestar | Block Speed | Per hour | | Cost per Tonne-mile |
|-----------------|----------------|------------------------|------------------------|------------------------|
| | | 100 mph load factor | 100 mph load factor | |
| 100 | 175 | 8.96 | 16,112 | \$ 9.60 |
| 150 | 251 | 7.21 | 13,543 | \$ 6.62 |
| 200 | 327 | 7.95 | 11,113 | \$ 6.62 |
| 250 | 422 | 6.51 | 10,615 | \$ 6.62 |
| 300 | 517 | 6.11 | 13,145 | \$ 6.62 |
| 350 | 583 | 6.31 | 12,543 | \$ 7.77 |
| 400 | 648 | 6.90 | 12,513 | \$ 7.71 |
| 450 | 713 | 7.13 | 11,613 | \$ 7.71 |
| 500 | 787 | 7.33 | 11,093 | \$ 7.70 |
| 550 | 861 | 7.58 | 10,272 | \$ 7.72 |
| 600 | 935 | 7.82 | 10,692 | \$ 7.72 |
| 650 | 1010 | 8.17 | 9,570 | \$ 7.70 |

Peacemakers

Peace in the Pacific can be achieved in only one way—by the unconditional surrender of Japan's military machine.

To shorten the road to victory, our leaders foresee that we must do more than reconquer territory yard by yard and island by island. We must knock out the enemy's ability to make war. And to carry out that strategy they chose the Boeing B-29 as our major weapon.

Tested, tested and flown into combat under the terrific pressure of global war, the Superfortresses are doing all that was expected of them and more.

They have enabled us to reduce American casualties and save precious months in making enemy war production, because they are the only aircraft in the world that can cover the vast distances from bases in the Marianas.

In early operations before poison island bases were secured they transported their own supplies over the "Hump" from India into China. They have not only reduced the output of Japan's war industries by the steadily mounting tempo of their bombing but have taken a huge toll of the fighter planes sent against them. And they

have lightened the blockade on enemy ports by sewing mines.

The versatile efficiency of the Superfort reflects Boeing's unparalleled experience in designing and building four-engine aircraft, and it forecasts the same qualities in the great Boeing planes of the future.

The performance of the B-29 stems directly from Boeing principles of research, design, engineering and manufacture. After victory, as today, you can count on any airplane "Built by Boeing" to lead the way.

RESEARCH OF THE B-29 SUPERFORTRESS • THE PLANE FRONTIER • THE NEW HYPERDRIVER
THE HEAVY TRAINER • THE STENOGRAPHER • FOR AMERICAN CITIES

BOEING

Unlimited Stalling Speeds Asked By 9 Of 11 Big Plane Builders

Post-war transport plans that fit current restrictions seen here
held Lockheed vote for continued CAB stall control; Curtiss-
Wright is other no-vote at Aircraft Industries meeting.

By SCHULER BANGS

Nine out of 11 major U. S. aircraft manufacturers want no limitations on the stalling speeds of post-war air transports they will build.

A vote on the controversial issue of a stall speed limit, now set at 80 mph in the Civil Aeronautics Board's Civil Air Regulations for transports given commercial certification, was taken by the industry last week for the first time, at a meeting in Hollywood, Calif., of the performance requirements sub-committee of Aircraft Industries Association of America's Airworthiness Requirements Committee.

The No's—The two companies voting against elimination of the 80 mph stall restriction were Lockheed and Curtiss-Wright.

The elimination will become

effective if the Board adopts a revised version of Part 84 of CAR, now being circulated, and such a step was approved by Douglas, Boeing, Consolidated Vultee, Republic, Northrop, North American, Martin, Fairchild, and Beech aircraft corporations.

As a result of the divided vote, a committee report to AIA's National Airworthiness Requirements Committee at Denver, Aug. 4, and 7, will not include comment on stalling speed issues.

Separate Reports—It was agreed that all companies at the Hollywood meeting prepare individual stall recommendations for formal approval of company executives and subsequent submission to CAB.

Handling the performance subcommittee meetings of which were attended by 15 outstanding con-

CAA Abroad

The Civil Aeronautics Administration is planning to establish offices in London, Stockholm, and Lisbon during the current fiscal year, if funds are available. It was announced following certification of North Atlantic routes by the Civil Aeronautics Board.

A fourth is to be set up in San Juan, Puerto Rico. Already on three airline routes, the city is expected to become a crossroads for further north-bound and southbound air operations.

Inspector—Fleet-Air carrier inspectors probably will be stationed in the foreign offices, and a general inspector may be placed in London to handle Army personnel applications for civilian pilot and mechanic certificates.

Altogether, CAA hopes to have offices at 17 foreign points two years from now, if Congress provides the money.

gray engineers and aerodynamicists, was Dr. W. Bailey Gurnold, chief of aerodynamics for Douglas Aircraft Co., Santa Monica.

The committee's stall vote, even though an informal action and one that may not appear in AIA reports, must be considered as an overwhelming indication of industry interest in high-speed, high-performance, transport models of high wing loading.

Lockheed Point—It is no secret that, on the West Coast, Lockheed would gain a tremendous commercial advantage over Boeing and Convair if the present CAB 80 mph stall restriction is softened.

Neither Boeing nor Convair's proposed big post-war transports will be able to carry full payloads and fuel loads without exceeding the 80 mph stall limit.

On the other hand, Lockheed engineers unanimously have designed their post-war transports to meet existing CAB specifications. This is true particularly of the Lockheed Constellation and it may be assumed that Lockheed's attitude during the committee meeting indicated that the massive Lockheed Constellation, now under construction for the Navy at Burbank, has been designed to operate commercially within an 80 mph stall limit.

Other Issues—While the stalling speed issue without question was the most critical aspect of the Hollywood Airworthiness Require-



Working Wings to him!

THERE are many reasons for the farmer's keen interest in flying. For one thing, he has a landing field right behind the barn. But, more importantly, a plane to him is a useful farming tool. With it he can inspect crops, livestock, fences . . . get machines repaired in a neighborhood . . . spot forest fires . . . control insects . . . check on soil erosion . . . top to bottom. No flight of fancy this, farmers have actually been doing these things

It may come as a surprise that this Cuckoo, the American Farmer, is the oldest still-in-flight magazine in print. But consider:

First: Last August a group of farm-owned planes, most of them piloted by their owners, flew to the first "Flying Farmer" Day held by Oklahoma A. & M. From New survey shows that 60% of personal planes sold immediately after the war will go to residents of rural areas. Second: Check-up in Kansas reveals that 425 out of 18,000 farm families intend to buy a plane, as against only 200 out of 20,000 city families.

Farmer's interest in aviation proves one thing: They're a progressive element in the national picture, open to new ideas, eager to get them to work—fine prospects for all big-minded advertisers.

The farmer's very progressiveness is the main reason for his interest in Country Gentleman. In every issue he finds more information—more detailed, more authoritatively treated—than in any other farm magazine. It's no wonder Country Gentleman gives first place to Country Gentleman's own spirit matches his own. And since for it a preference and loyalty unmatchable among other magazines.

What business can ignore
the farmer's strength?

Country Gentleman
A DART PUBLICATION
No. 1 with FARMERS—RURAL DEALERS—ADVERTISERS

Airlines Form CAR Policy

Agreement on three main controversial points in connection with the Civil Aeronautics Board's proposed revision of Part 84 of the Civil Air Regulations on airworthiness requirements for planes in the transport category was reached by the airlines in a talk in Washington where the subcommittee on CAB of Air Transport Association's Aircraft Requirements Committee met.

The issues were:
Elimination of stalling speed restriction.
Excessive rate of climb with one engine inoperative.
Takeoff climb requirements with all engines operating.

The ATA subcommittee, as was expected, favored the first of these. The stalling speed limitation is 80 mph in the present regulations, but the revised version being circulated in the industry omits the restriction. Those favoring its removal contend to retain it would prevent many of the new planes that will be up for airworthiness certification in the future from being operated economically.

On the second issue, the airlines group felt it would be rate of climb with one engine out should be 22 times the square of a plane's stalling speed, regardless of whether it has more than two engines. The new Part 84 would use this formula for two-engine planes, but for four-engine it would be 24 times the stalling speed squared.

Sliding Scale—Manufacturers are understood to favor a sliding formula increasing with the number of engines. Airline representatives saw no reason that a better rate of climb should be required for a four-engine than a two-engine plane.

On the third point, the ATA subcommittee sees no need for a takeoff requirement with all engines running, although such a regulation is contained in the proposed revision and aircraft manufacturers reportedly favor it.

The subcommittee was unanimous in its attitude on the three questions, part of a three-day agenda in which the entire new version of Part 84 was discussed.

ments Committee conference, it covered only a portion of four days of subsequent meetings for the review of all phases of the proposed Part 64.

Much of the work of the western conference consisted of rephrasing, for greater clarity of expression, in an engineering sense, various technical paragraphs in the proposed regulation. For the review of 64, and writing of recommendations not yet available for publication, the conference was divided among the following subcommittees in addition to that on performance requirements:

- ▶ **Flight Loads Requirements**—Roy A. Miller, chief of structures, Consolidated Vultee, chairman.
 - ▶ **Ground Loads Requirements**—C. R. Strong, chief of structures and weights, Douglas, chairman.
 - ▶ **Power Plant Requirements**—J. W. Young, chief of power plant section, North American Aviation, chairman.
 - ▶ **Pressure Cabin Design**—J. P. McBrearty, chief of structures, Lockheed, chairman.
 - ▶ **Fire Protection**—H. R. Roper, fire prevention, Douglas, chairman.
- The conference was also attended by Eugene Norris, ALA director of technical services, Washington.

'Simplified' Cargo Service Offered

New York company, flying Lockheed, plans operation with no frills; first cargo is penicillin.

An all-cargo air service, operating on a strictly commercial basis with no deluxe features, was to be inaugurated last week by Air Cargo Transport Corp., of New York. Response to the company's initial advertising is reported to be sufficiently heavy to make a selective booking necessary. For the present time, say company officials, only cargo directly associated with the war effort will be handled.

Three Lockheed Lodestars, obtained from surplus, comprise the ACTC fleet at the present time, although application has been made for allocation of C-47's.

In line with the company's stated policy of offering "basic" cargo service in its simplest form, the Lodestars have been stripped of every dispensable feature. The soundproofing has been removed and the floor reinforced. It is estimated that the planes can carry a payload of ap-



TWA GLASS CLOTH:

Transcontinental & Western Air is using Neoprene-coated Fiberglas cloth as supporting fabric for seats on all its conventional-jet operated planes. Original seats were made on TWA's Stratoliners. Photo shows the cloth in use in horizontal and upright sections of one of the passenger seats.

approximately 3,500 pounds, depending on the size of the fields to be used.

▶ **Penicillin Shipped**—The first flights were on a contract for shipment of penicillin, according to company officials.

The operations base is at Roosevelt Field, L. I., where the company maintains its own ground crew.

The ACTC rate scale, based on the usual classes of commodity, is Class 1, 55 cents per ton mile; Class 2, 45 cents; Class 3, 60 cents; Class 4, 30 cents.

W. May Penell is president and treasurer of ACTC. It is understood that he has been identified with the garment industry. William L. Rame, secretary and general traffic manager of the new venture, was formerly traffic manager at ACTC offices for TACA Airways. The ACTC offices are in the Ramage State Building, 300 Fifth Avenue, New York.

Olympia 'Port' Returned

Refueling control resumed in 1942, Army engineers early this month turned over to the city commissioners of Olympia, Wash., 260 acres of the Olympia Airport originally owned by the city. All improvements made by the Army were included in the return of the property. The balance of 1,160 acres reverts to RFC as surplus property.

New Loading Plan Eases Cargo Task

Simplified naval procedure uses three men to load huge *Mus* in an hour, post-war use evident.

A cargo-handling plan that may ease the serious nose pointers for their big post-war equipment has been worked out by the Naval Air Transport Service for the new 72½-ton Martin Mars, which, it is claimed, can be loaded in an hour and unloaded in half an hour under the new system.

Attractive feature of the MATS plan is that it requires no costly equipment and cuts paper work and manpower to a minimum. These features were developed by Lt. (j.g.) Douglas U. Stark USNR, formerly with United Air Lines.

▶ **Pre-Packed**—As described by the Glenn L. Martin Co., the key to the loading system is preliminary arrangement of the cargo. Except for special articles, such as fragile cargo or bulky items, handling of individual pieces has been done away with. Regular cargo is checked and separated at a dock

Cargo Conflict

American Airlines' eventful experiments in air cargo operations have had an echo in a CAB proceeding involving application of American for approval of a director holding a similar position with surface transport companies.

The Board approved the role of Walter S. McLaughlin, of Detroit, as a director of American, a director of Penna. Marquette Railroad, and a director of Detroit and Cleveland Navigation Co., finding that the degree of conflict of interest is "insignificant."

▶ **Disaster**—In a dissenting opinion, however, Member John Lee referred to the majority's statement that the Penna. Marquette is primarily a freight carrier (in opposition to American's major income being from passenger), and pointed out that the airline "has recently inaugurated a program for the development of an freight traffic in volume." Accordingly, he saw a potential conflict of interest. The majority opinion stressed that the Board's control over interlining agreements is continuous and that, therefore, the McLaughlin case could be reconsidered in the future, if necessary.

REPEAT PERFORMANCE

On plane after plane, "wing men" line up beside "swastika" as the men and planes that helped smash the Nazis join the fight against the Japs. ★ *Swastika* on the island-dotted open seas to the pilots who earned them "swastikas" over the hedgehogs and winding rivers of the European Continent.

★ But fiercer is the voice of an old friend is the smooth-running power of their Allison engines. Pilots learned half a world away that the name Allison means quality workmanship—and a reliable, dependable product.

KEEP AMERICA STRONG
BUY MORE WAR BONDS

POWERED BY ALLISON

*V-1710—Lightning
V-1710—Thunder
V-1710—Storm
V-1710—Victory*

More than 4,000 Allison engines have been built for the armed forces of the U. S. Army and Navy.

LIQUID-COOLED AIRCRAFT ENGINES

Allison

DIVISION OF

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GENERAL MOTORS

Indianapolis, Indiana

warehouse, then placed on rails on wooden dais which are marked across of the cargo deck.

After the flats are loaded to uniform height, the set, specially built so there will be no movement of the pieces in contact, is tightened by a rope through eyelets, then tagged as to priority, destination, and a number corresponding to the flat. This and other information is based on simple, standard forms.

Estimates are that two hours are sufficient to check 30,000 lbs. of cargo from tracks to dais, even if several thousand items are included.

Wing Hoist—Mechanical "trailer" and trailers hold the netted cargo to the side of the ship. A hoist built into the wing picks the nets off the dais and swings them inside. Marvin says three men, one outside and two in the plane, can load the entire ship.

The cargo hoist does not extend to fore and aft compartments, but "low-shedded sections," part of the plane's equipment, are used to move the cargo into the more remote parts of the flying boat.

Transport officers at intermediate stations can tell by the standard manifests what total weight of, weight through, and compartment weight reduction will amount to, and can thereby calculate plane balance and load allowable at the next station.

Cargo School—Mass application of the system, which will secure centralized location control over each item along the route from the U. S. to the Far Pacific, is being taught at an Air Transport School conducted by Marvin.

PCA Earnings Point Way To High Year

The six months' earnings report of Pennsylvania-Central Airlines, indicates the industry will show substantial gains in operation.

PCA's operating revenues jumped from \$2,515,000 for the first six months last year to \$4,764,825 during the like period this year. Operating profit rose from \$121,574 to \$627,345, while net income increased from \$66,963 to \$411,240.

Flare Increases—The company's average number of planes in operation in the 1945 six months was 18.1 compared with 7.6. Thus revenue plane miles jumped to 4,375,832 from 1,851,045, and revenue passenger miles to 73,461,714 from 31,932,192.

Insurance Policies Revamped For Growing Global Air Travel

New protection forms designed for both domestic and international trips; Associated Aviation Underwriters takes apparent "lead" in domestic coverage with Continental Casualty and U. S. Aviation Underwriters contesting foreign field.

Insurance companies this week laid the foundation for what is expected to be an ever-growing volume of airline passenger coverage, with new forms of insurance designed to take advantage of the expected increase in both domestic and international air travel.

Breaking of the log-jam on lowering the cost of domestic trip policies by the agreement between the Air Transport Association and Associated Aviation Underwriters (Aviation News, July 14) apparently set the stage for announcement of insurance applicable to world air travel.

Continental Casualty Co. recently began writing worldwide coverage, and United States Aviation Underwriters will begin August 1, same date fixed for inauguration of the Associated Aviation policy.

Closed Field—Although Continental's and U. S. Aviation's coverage also extends to travel on domestic air carriers, insiders see little chance for these companies to really business in that field. The Associated Aviation policy, worked out in conjunction with ATA after months of negotiating, will be sold at ticket counters, and quickly promoted by the airlines.

Associated Aviation's position is given support in the strong action on world-wide features in the announcement of the new policies of Continental and U. S. Aviation. Like that of Associated Aviation, Continental's policy is trip insurance. Premiums are based on cost of ticket, with 25 cents buying \$5,000 worth of coverage on any fare up to \$100. Benefits are available up to \$25,000 on one life.

The policy covers travel on any airline anywhere in the world. Also included are flights on British and U. S. military transport craft when liability is charged for criminal.

Two Sellers—At present, Continental's policy is sold at ticket offices of Pan American Airways and American Export Airways, the companies for which the insurance was especially designed. Significantly, the company asserts. "The new policy is also offered for domestic trips, providing a broader range of insurance coverage than heretofore available but at no increase in the premium currently charged for single or round trips between any two points in the United States and in contrast to the revised trip insurance offered by the other two companies, U. S. Aviation is after business on an annual contract basis, with premiums of \$1.40 per thousand and coverage up to \$100,000. This is the same rate the group charges for travel on domestic air carriers.

Covered—Previously, the group had a limit of \$25,000 on its individual "survivors" policies, and coverage was limited to the Western Hemisphere. Now, while the \$1.40 rate applies only to travel on U. S. flag airlines throughout the world, and to approved foreign carriers in the Western Hemisphere, a rate of \$4.00 per thousand covers flights on any scheduled passenger airline, ATC, NATS and RAP Transport Company, even in closed waters.

In sum, the three new types of coverage are:
Associated Aviation Underwriters—Trip insurance; 25 cents per \$5,000, good for one-way passages within seven days (fewer premium based on number of hours in air), applicable to flights in U. S., 150 miles into Canada on TCA or U. S. airlines, and Hawaiian Islands travel on ground to and from airport, sold at airline ticket counters.
Continental Casualty Co.—Trip insurance; 25 cents per \$5,000 on fare of \$150, limit of coverage, \$25,000 applicable to flights anywhere, domestically or internationally, and on any airline, including ATC, NATS and RAPTC, ground coverage on stopovers and so on from airport; reimbursement for medical expenses in amounts up to \$50 for each \$1,000 of coverage, sold at Pan American and American Export ticket offices.
United States Aviation Underwriters—Annual policy insurance; \$1.40 per \$1,000, \$100,000 coverage, \$100,000; applicable for flights anywhere in the world on American

Mechanix Illustrated is filled with the plane facts the fellows want



Month after month, there's an airplane on the cover of Mechanix Illustrated. It's there because the magazine is aviation-estimated. Mechanix Illustrated is filled with flying and facts for flyers. It's aimed at tomorrow's market that will buy and fly your peacetime planes. These enthusiasts, all over the country, even themselves with the flying "know how" that Mechanix Illustrated brings them in stories like the one on Page 41 of the April, 1945 issue.

Stories like this go a long way toward helping put a plane in every postwar pasture. Mechanix Illustrated is building up wants for you to turn into sales.

For nearly 24 years, future flyers have been reading "The School Shop" in Mechanix Illustrated. (Here's the feature as it appeared in May, 1945.) It is designed to interest, guide, and teach the fellows who will be flying tomorrow. It's very popular.



The Magazine that Makes Plane Facts Exciting

Interest tomorrow's cloud-boppers in your planes by talking their language in the magazine that interests them... Mechanix Illustrated. It already carries more aviation advertising, for good reasons. Tell the boys what you are planning for them. Tell them what to expect. Mechanix Illustrated knows your market - it's talking flyers' language, as no other magazine talks. Remember, the sky's your limit - and you're reaching the fellows with their eyes on the skies, by using Mechanix Illustrated regularly.

FAWCETT PUBLICATIONS, INC., 295 Madison Ave., New York 17, N.Y., World's Largest Publishers of Monthly Magazines.

OPPORTUNITIES FOR ENGINEERS AND DRAFTSMEN

Pratt & Whitney desires to develop top level talent in the field of aircraft engine design. You will receive excellent pay, excellent working conditions, and a challenging environment in the aircraft engine design and development department.

DESIGNING ENGINEERS

McDonnell and Pratt & Whitney are seeking experienced engineers and draftsmen for the design and development of aircraft engines.

For engineering experience in the design department and production of aircraft engines, contact us at our main office.

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can-fuel airplanes, and in the Western Hemisphere on any approved airline, rate of \$3.40 per \$1,000 for flight activity in world on any airline, and on ATC, NATS, and RAFTC, and in combined zones, reimbursement for medical expenses of \$50.00 for each \$1,000 of coverage, sold by group and its agents. As American Airlines' new policy was arranged through ATA, it became practically the "official" airline policy. That company is expected, therefore, to be "average" in the domestic field on top insurance.

Internationally, Continental claims to have been the first domestic company to enter the foreign field with an accident policy, started last year. **■ Experience**—Against this, U. S. Aviation has acquired experience in aviation underwriting dating back to 1933, and a group of 32 companies with assets totaling more than two billion dollars.

New Planes Double Delta Air Schedule

Delta Air Lines' report for the first six months of 1948 indicates that return of airlines from the Army and acquisition from surplus will more than double the number of passengers it carried last year. Delta already has 33 flights daily, compared with 16 in 1944.

Number of passengers carried in the first six months of this year was 42 percent higher than for the same period a year ago. The figures are 133,203 and 71,260. Revenue passenger miles increased 41 percent, from 57,939,484 to 84,241,513, mail-passenger miles jumped 33 percent from 226,613,688 to 3,020,493,835, cargo-passenger-miles rose 34 percent from 162,978,592 to 246,287,057. Express pounds went up 33 percent.

■ Another DC-3—Flights were added gradually during this period as planes were returned by the Army. One more DC-3 is in process of conversion and will be added to the Delta schedule within six weeks.

The line is now carrying a heavy part of the westward employment traffic stemming from Seven-

nah and Charleston, its eastern terminals, where bombers from the European theater are being loaded.

Seattle-Tacoma Airport Near Use By Airlines

Already delayed one year by military shortages, Seattle-Tacoma Airport at Shore Lake, Wash., probably will be in active use by major airlines by this fall. The first airline lease for use of the field has been signed by Pan American, World Airways, and several leases were scheduled to be signed last Friday by Northwest and United airlines.

L. C. Reynolds, manager of World Airways' Pacific-Alaska Division, says his company will make the airport its major base for operations into Alaska.

The Shore Lake airport has been under construction for two years, and ultimately will replace Seattle's King County Airport (Boeing Field) as the Pacific Northwest's major air terminal and foreign port of entry.

CAB SCHEDULE

- July 29, 1948. Airline schedule effective July 29, 1948. Airline schedule effective July 29, 1948.
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CAB ACTION

- 1. The Civil Aeronautics Board.
- 2. United States Department of Commerce.
- 3. Federal Aviation Administration.
- 4. Federal Bureau of Investigation.
- 5. Federal Reserve Board.
- 6. Federal Reserve Bank of New York.
- 7. Federal Reserve Bank of Chicago.
- 8. Federal Reserve Bank of San Francisco.
- 9. Federal Reserve Bank of St. Louis.
- 10. Federal Reserve Bank of Cleveland.
- 11. Federal Reserve Bank of Boston.
- 12. Federal Reserve Bank of Philadelphia.
- 13. Federal Reserve Bank of Richmond.
- 14. Federal Reserve Bank of Kansas City.
- 15. Federal Reserve Bank of Dallas.
- 16. Federal Reserve Bank of Houston.
- 17. Federal Reserve Bank of San Antonio.
- 18. Federal Reserve Bank of Fort Worth.
- 19. Federal Reserve Bank of Oklahoma City.
- 20. Federal Reserve Bank of Denver.
- 21. Federal Reserve Bank of Salt Lake City.
- 22. Federal Reserve Bank of Portland.
- 23. Federal Reserve Bank of Seattle.
- 24. Federal Reserve Bank of Tacoma.
- 25. Federal Reserve Bank of Vancouver.
- 26. Federal Reserve Bank of Victoria.
- 27. Federal Reserve Bank of Montreal.
- 28. Federal Reserve Bank of Toronto.
- 29. Federal Reserve Bank of Ottawa.
- 30. Federal Reserve Bank of Winnipeg.
- 31. Federal Reserve Bank of Regina.
- 32. Federal Reserve Bank of Saskatoon.
- 33. Federal Reserve Bank of Edmonton.
- 34. Federal Reserve Bank of Calgary.
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Lessons from German Research Policy

CRITICISM OF THE REMARKS' Need Investigating Committee of the delay of the Army Air Forces in delivering jet combat planes to the European war can be constructive only in so far as it helps to correct any fundamental deficiency in a complicated research, development and procurement system.

Both Britain and the U. S. were lagging behind Germany's jet and turbine developments. The U. S. trailed the British in robot and rocket bombs the Allies were hardly in the race at all. The usual counter-argument of the military in this country is that those other advantages which we did possess won the German war. But some of our best scientists who have inspected German aviation and robot-rockets development return somewhat shaken. Their estimates of the additional time Germany would have required to shorten actually war also is to beat her very from weeks to a few months. Our relative technical leadership was deteriorating rapidly.

American scientists and other experts who have visited Germany seem convinced that a principal reason for German excellence in new aircraft developments, for example, was the nation's attitude and policy on research and development.

The attitude on research differed in some marked respects from that here, where emphasis is on production. In the Reich, invention and experimentation were sustained liberally by a state agency that sought out and encouraged scientists with an ideal, gave them the means to work, and rewarded them well.

This German policy was not a Nazi innovation. It was ingrained in the German general staff and was operating years before the Nazis gained control. Experimentation that resulted in the V-2 rocket, for instance, is believed to have started as early as 1928.

The quest by technical observers for reasons of German leadership in aerodynamics lead them to these discoveries:

Scientifically equipped laboratories in some and most areas, well equipped and maintained; the finest equipment and sufficient for the research work in these laboratories.

Excellent salaries, good pay, excellent living conditions for scientists.

Freedom from red tape such as cost accounting, overhead reports or expectations to prove progress or justify results. Everything possible was done to relieve the scientist from distractions and worry to enable him to concentrate on the job at hand.

To their amazement U. S. observers found scores of these laboratories built for special projects. Many were in the scenic Bavarian Alps. Some were in the Thuringian Forests. Others were in Saxony resorts, or along the Baltic shore, though frequent bombing of that area had driven most of them south to mountain lake areas for conducting underwater experimentation.

In general charge of the German scientific pro-

gress was a Ministry of Research, a civilian agency. The Army did not dominate it. Neither did the Navy nor Luftwaffe. The armed services benefited, however, from the common pool of knowledge and invention. So did commercial projects to the extent that the state considered such benefit to its interest.

The Ministry welcomed anyone with an idea, whether an unknown or an inventor of reputation, on the theory that sometimes crackpots chance upon a worth-while discovery. If one out of 10 made good, the investment was considered successful. This is in impressive contrast with reports that a Western aircraft manufacturer submitted a jet plane idea to the AAF five years ago and was promptly turned down, or that the brilliant young Miller was told by Wright Field to finish his schooling before trying to get the AAF to help develop his new helicopter ideas.

Such an agency existed in Germany in 1938 when experimentation was undertaken with official encouragement of a then described "half-baked" venture of flying a rocket to the moon. The scientist who had this idea sought aid from the government. It looked incredible but they were given means to continue work on their idea. Some 10 years later the objective was modified from inter-planetary transportation to dispatching mail from Europe to America in a rocket-propelled mail. Then, when the war started, the basic principles of a rocket bomb were already well known to the Germans. Certain troublesome phases were assigned some of the mountain and sea-bore laboratory groups. It is said that a dozen of these units were at work on the project from time to time.

Finally, the results of these experiments and theories were assembled. Tests were made although interrupted frequently by bombing. Finally, the deadly V-2 was perfected, a ten ton missile flying at the speed of an artillery projectile to a height of 70 miles and accurate within a few square miles at a range of some 60 miles. At the time the underground Nordhausen rocket plant was captured, the necessity of the V-2 was such that it was estimated up to 3,000 miles it could strike within a mile radius of any objective. This missile was ready for production when V-E-Day came.

Despite the difference between the Fascistic and democratic ways of life this research technique, under direction of our most distinguished civilian scientists, would have much to offer those who have the responsibility of formulating a national scientific and research policy for the future. Certainly essential objectives other than the obvious ones of coordination and stability are freedom from military and naval control, a perpetual attitude of open-mindedness, and sufficient income to attract not only the scientists who already have made reputations, but those yet to make their mark.

ROBERT H. WOOD



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Pattern indication by daylight or by artificial light gives the pilot a quick, visual picture of his attitude at all times—a single glance tells the story. Thus the pilot can control his aircraft under instrument conditions for long periods without fatigue.

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 Today, Flying Horsepower is exclusively warpower. Only warplanes and essential civilian aircraft get this amazing new speed, range, load-carrying power.

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